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INDUSTRIAL ARBITRATION IN THE UNITED STATES.

THE years 1886 and 1887 marked an important departure in arbitration legislation in the United States. Up to that time five States besides Massachusetts and New York had passed laws providing statutory machinery for the voluntary settlement of disputes between employers and employees,— New Jersey in 1880 and 1886, Pennsylvania in 1883, Ohio in 1885, Kansas and Iowa in 1886. An analysis of the Pennsylvania, Kansas and Iowa laws appears below in the accompanying table.

All this was essentially *permissive* legislation, providing more or less legal formality and "red tape" for such employers and employees as could agree to submit their differences to arbitration,—in other words, for doing what could often be done in a simpler and more satisfactory way without the aid of the statute.

Ordinarily, these laws simply provided for the creation of local boards of arbitration in each county, usually upon joint petition to the Court of Common Pleas of a

specified number of employers and employees. Whether the legal formalities were greater or less, however, seems to have made no perceptible difference in the results. Diligent inquiry failed to reveal that the laws were of any real use. Even in States like Pennsylvania, Ohio and New Jersey, where resort to private arbitration — facilitated by sliding scales and by standing committees representing labor organizations or boards of trade — was found to be increasing, employers and employees evinced a decided aversion for the statutory machinery, and a preference for doing the business of arbitration in a way that best suited the exigencies of the occasion and the traditions of the trade concerned. Pennsylvania found her law unsatisfactory in three trials. The other States in question had not even thought the statutes worth trying.

The beginning of the significant departure, however, is to be found in Massachusetts and New York. In 1886 each of these States passed a law inaugurating a new system of arbitration, consisting of the usual provisions for local boards of first instance, plus a permanent State board of three persons, appointed by the governor and having jurisdiction over the whole State in cases of appeal from the findings of the local boards.

The legislative optimism which anticipated a resort to arbitration sufficient to occupy both local boards and a court of appeals was as little justified by the experience of Massachusetts and New York as it had been by the experience of other States. A year convinced the permanent boards of both States that, as courts of appeal, they were superfluous,— not because the local tribunals were sufficient and not because there was any dearth of disputes to settle, but because no local boards were ever called into existence. The experience of Massachusetts and New York was simply entirely in keeping with the testimony of labor bureaus and other experts as to the

practical failure of such arbitration laws wherever they existed in the United States.*

In 1886, therefore, Massachusetts and New York differed from these other States simply in having a permanent State board of appeal, appointed by the governor, with nothing to do. Naturally, these permanent boards sought to justify their existence. As the disputants did not appeal to them, they appealed to the disputants; and, spite of the fact that according to official interpretation of the statutes they were simply boards of appeal with no power of initiative in the settlement of disputes, they proceeded to tender their services as mediators whenever considerable strikes occurred. The very modest success attending these attempts at mediation and conciliation convinced both boards that they had a useful mission as official peacemakers, acting in the name and with the authority of the State, whatever their failures in other respects. Accordingly, the legislatures of New York and Massachusetts took the second step in the departure referred to. Early in 1887 each State passed an act reorganizing the State board and granting increased powers with special reference to taking the initiative in the work of mediation and conciliation. In addition to the old right of appeal from local boards, it was provided, first, that the parties to the dispute could elect to submit to the State board in the first instance; and, more important still, that the State board should have not only the right, but the *duty*, of initiative in the settlement of actual or impending strikes or other disputes.

As reorganized in 1887, the Massachusetts Board of Arbitration and Conciliation and the New York Board of Mediation and Arbitration represented, therefore, an important innovation in the way of State intervention between employers and employed. These permanent tri-

* For more detailed information on this point, see this *Journal*, July, 1887, p. 487, "Action under the Labor Arbitration Acts."

bunals of three men, with the duty of initiative, had all the powers conferred upon the local voluntary boards called into existence by joint petition of employers and employed,— the power to subpœna witnesses, enforce the production of books and papers, and perform functions of an ordinary court. So far as the new power of initiative was concerned, it is to be observed, first, that the board *must* at once put itself in communication with the contestants, and tender its services; second, that upon the joint application of both parties it must proceed to investigate and settle the questions in dispute,— decisions to be binding six months, or until sixty days after notice given to either party; third, that, in case either party or both parties refused to accept the offices of the board, it might proceed to a thorough investigation for the purpose of declaring which of the contestants was to be blamed for the breach of industrial peace. Finally, the proceedings and findings of the boards were to be made public, and once a year reported to the legislature.

Obviously, this was not compulsory arbitration. It might, however, involve compulsory submission to investigation at the instance of aggrieved employers or employees, compulsory submission of books and accounts to examination, and public condemnation by means of a published verdict expressly addressed to public opinion. The degree of coercion would of course depend, on the one hand, upon the susceptibility of the censured party to the unenviable notoriety attending this official pillorying, and, on the other hand, upon the degree to which public opinion was interested in the controversy and espoused the cause of the aggrieved party. As might be anticipated, experience has shown that personal equation to be very variable, public opinion being somewhat capricious, and the most culpable persons sometimes indifferent to it. Nevertheless, the element of coercion is a real one; and the alternative presented to the party which declines to have media-

State and Date of Law.	Organ of Arbitration.		Initiative
	State.	*Local.*	*Public.*
UNITED STATES. 1888.*		A temporary commission of 3, appointed by the President.	The President may tende the services of such a commi sion.
		A board of arbitration chosen by disputants.	
CALIFORNIA. 1891.	State Board of Arbitration and Conciliation.		
		A board appointed by disputants if they so desire	
COLORADO. 1887.	Commissioner of Labor Statistics.		
IOWA. 1886.		County tribunal for voluntary arbitration.	
KANSAS. 1886.		County tribunals for voluntary arbitration.	
LOUISIANA. 1894.	Board of Arbitration and Conciliation.		Shall endeavor to mediate i any serious controversy, shall in stitute inquiries, and publish report assigning responsibility
MARYLAND. 1888.		Judge or justice of the peace, or any board upon which both disputants agree.	In the case of any corporatio in which the State is interested as stockholder or creditor, the Board of Public Works may propose arbitration.
MASSACHUSETTS. 1886-87-88-90.	State Board of Arbitration and Conciliation.		The board shall endeavor to mediate in any serious contro versy, and may institute in quiries.
		Local board of arbitration and conciliation.	
MICHIGAN. 1889.	State Court of Mediation and Arbitration.		The court shall endeavor to mediate in any serious contro versy.
MISSOURI. 1889.	Commissioner of Labor Statistics and Inspection.		May mediate in any contro versy in which a strike or lock out is not in progress.
MONTANA. 1887.	State Board of Arbitration and Conciliation.		
		Local board of arbitration and conciliation.	
NEW JERSEY. 1892.	State Board of Arbitration.		Shall endeavor to mediate in any serious controversy.
		Local board of arbitration.	
NEW YORK. 1886-87.	State Board of Mediation and Arbitration.		Shall endeavor to mediate in any serious controversy, and may institute inquiries.
		Local board of arbitration.	
NORTH DAKOTA. 1883.	Commissioner of Agriculture and Labor.		
OHIO. 1893-94.	State Board of Arbitration and Conciliation.		Shall endeavor to mediate in any serious controversy, and may publish its finding of responsibility.
		Local board of arbitration and conciliation.	
PENNSYLVANIA. 1883. Revised 1893.		Local board of arbitration.	

* An act approved in June, 1888, also directs the Commissioner of Labor to investigate the causes of and fa

The constitution of Idaho provides that the legislature ma
Information has been received of a recent enactment of the

Initiative in Arbitration.		Composition and Organization of the Board of Arbitration.
c.	*Private.*	
may tender ch a commis-		The Commissioner of Labor shall form one member. One member shall be a resident of State where the dispute arises
	Proposition to be made by one disputant, and accepted by the other.	Board shall consist of 3 disinterested persons, one chosen by each disputant, the third by these two.
	Application must be made by employer or majority of employees, or both.	Board shall consist of one member representing employers, one representing employees, and a third.
	Joint agreement.	
	Application from employer or 15 employees.	
	Application from 4 firms, employing each not less than 5 men (or 1 firm employing 20 men), and from 20 employees.	The board shall be chosen equally by the two disputants. If the members fail to agree, they may, by unanimous agreement, choose an umpire.
	Application from 2 firms or 5 employees.	The board shall consist of 2 employers and 2 employees, and an umpire named by county judge.
o mediate in ersy, shall in- nd publish a esponsibility.	Application signed by employer or majority of employees, or a duly authorized agent of either or both parties.	2 employers and 2 employees, appointed by the governor on recommendation of some association or board representing employers and employees respectively, and a fifth.
y corporation is interested creditor, the Works may n.	Application from employer and employees.	If the disputants so desire, the judge or justice, or a board of two or four arbitrators, one-half satisfactory to each side acting with him.
endeavor to rious contro- institute in-	And shall arbitrate upon request of either disputant.	The board shall consist of 1 employer, 1 member of a labor organization, appointed by governor, and a third. The board may employ expert assistance.
	May be formed by agreement of disputants.	Composed of 1 employer, 1 employee, and a third member, or as disputants agree.
endeavor to rious contro-	And shall arbitrate upon joint application of the disputants.	Composed of 3 competent persons appointed by the governor.
any contro- rike or lock- ss.		The commissioner may associate with himself 2 employers and 2 employees in similar industries as a board of arbitration.
	Application from employer or majority of employees.	The board shall consist of 1 employer, 1 laborer, and 1 citizen not directly interested.
	May be formed by agreement of disputants.	
o mediate in ersy.	Application from both disputants or appeal from decision of local board.	The board shall consist of 1 member from a labor organization and 2 other persons.
		The employer shall choose 2 members, the employees 2, and these four a fifth.
o mediate in oversy, and ries.	Application from both disputants or appeal from decision of local board.	The board shall consist of 1 member of a labor organization and 1 member of each of the two great political parties.
	Consent of both disputants (by implication).	The board shall consist of 1 member chosen by employer, 1 chosen by employees, and a third chosen by them.
	Request of employer or of 15 employees.	
o mediate in oversy, and nding of re-	Employer or a majority of his employees.	The board shall consist of 1 employer, 1 employee, and a third.
	Agreement of the disputants.	The board may consist of 1 member named by employer, 1 named by employees, and a third.
	Application from either disputant or both.	Each disputant may name 3 members, and the Court of Common Pleas 3 (or, if either disputant neglect to nominate, the court may name 6). The sanction of the court is necessary for the existence of the board.

ases of and facts relating to all controversies and disputes between employers and employees as they may

gislature may establish boards of arbitration. The constitution of Wyoming provides that the legislature

ctment of the Minnesota legislature (1895), providing a State board. The text of the statute, however, has

	Composition and Organization of the Board of Arbitration.	Powers of the Board of Arbitration.
	The Commissioner of Labor shall form one member. One member shall be a resident of State where the dispute arises	May advise the disputants, and shall publish its d cision. May subpœna witnesses.
	Board shall consist of 3 disinterested persons, one chosen by each disputant, the third by these two.	Shall publish its decision. May subpœna witnesses.
	Board shall consist of one member representing employers, one representing employees, and a third.	Decision shall be binding "upon the parties who jo in the application" for 6 months or for 60 days aft notice, or for such time as parties may agree.
		Shall seek to mediate. May summon witnesses.
	The board shall be chosen equally by the two disputants. If the members fail to agree, they may, by unanimous agreement, choose an umpire.	The decision of the umpire upon points submitted b all members or a majority of each class shall be fin and conclusive.
	The board shall consist of 2 employers and 2 employees, and an umpire named by county judge.	The decision shall be final in all matters submitted.
	2 employers and 2 employees, appointed by the governor on recommendation of some association or board representing employers and employees respectively, and a fifth.	Decision of the board shall be published and recorde Board may compel attendance of witnesses and pr duction of papers.
	If the disputants so desire, the judge or justice, or a board of two or four arbitrators, one-half satisfactory to each side acting with him.	The decision shall be final in matters submitted b both disputants.
	The board shall consist of 1 employer, 1 member of a labor organization, appointed by governor, and a third. The board may employ expert assistance.	The board shall publish its decision. Decision sha be binding "upon both parties who join in the applic tion" for 6 months or for 60 days after notice. Th board shall have power to question operatives and t examine accounts.
	Composed of 1 employer, 1 employee and a third member, or as disputants agree.	
	Composed of 3 competent persons appointed by the governor.	Decision binding upon the applicants [by implication] The court shall have power to issue subpœnas, examin documents, etc.
	The commissioner may associate with himself 2 employers and 2 employees in similar industries as a board of arbitration.	The decision shall be published, but shall be in no wa binding. The board may summon witnesses.
	The board shall consist of 1 employer, 1 laborer, and 1 citizen not directly interested.	The decision shall be binding "upon the parties who joi in the application" for 6 mos. or for 60 days after notice
	The board shall consist of 1 member from a labor organization and 2 other persons.	The decision shall be final "upon all parties to th arbitration." The board may summon witnesses, a any court of record.
	The employer shall choose 2 members, the employees 2, and these four a fifth.	The decision shall be final unless appealed to Stat Board. Local board may summon witnesses, as an court of record.
	The board shall consist of 1 member of a labor organization and 1 member of each of the two great political parties.	The decision shall be final "upon both parties to th arbitration." The board may issue subpœnas, examin documents, etc., as a court of record.
	The board shall consist of 1 member chosen by employer, 1 chosen by employees, and a third chosen by them.	The decision shall be a settlement of the matter re ferred to board, unless appeal is taken to State Board Board may issue subpœnas, etc., as a court of record.
		Shall diligently seek to mediate. May summon wit nesses.
	The board shall consist of 1 employer, 1 employee, and a third.	The decision shall be published if mediation fails Board may summon certain persons as witnesses.
	The board may consist of 1 member named by employer, 1 named by employees, and a third	The board shall have whatever power of decision the disputants agree upon. May summon certain witnesses.
	Each disputant may name 3 members, and the Court of Common Pleas 3 (or, if either disputant neglect to nominate, the court may name 6). The sanction of the court is necessary for the existence of the board.	The decision "shall be final and conclusive of all mat ters brought before them." Board may require attend ance of witnesses.

nd disputes between employers and employees as they may occur, and which may interfere with the welfare of the p

The constitution of Wyoming provides that the legislature shall establish boards of arbitration.
viding a State board. The text of the statute, however, has not been accessible.

RATION.	INDUSTRIES OR ESTABLISHMENTS TO WHICH ARBITRATION IS APPLICABLE.
ublish its de-	Railroad or transportation companies engaged in interstate commerce.
a witnesses.	Any employer.
rties who join 60 days after ree.	Any industry.
tnesses.	Any establishment employing 25 or more employees.
submitted by shall be final	Manufacturing, mechanical, mining.
submitted.	Any mechanical, manufacturing, mining, or other industry.
and recorded. sses and pro-	Any industry employing not less than 20 persons.
submitted by	Any trade or manufacture.
Decision shall n the applica- notice. The ratives and to	Any establishment employing not less than 25 employees.
implication] nas, examine	Any industry.
be in no way ses.	Any industry.
rties who join after notice.	Any establishment employing 20 employees.
arties to the witnesses, as aled to State sses, as any	Any industry.
parties to the nas, examine e matter re- State Board. of record.	Any industry.
summon wit-	Any establishment employing 25 or more employees.
diation fails. nesses.	Any establishment employing not less than 25 employees.
decision the in witnesses.	
e of all mat- quire attend-	Mining, manufacturing, or transportation industries.

fare of the people of the different States.

tion or arbitration forced upon him may prove disagreeable or even disastrous. To some people, indeed, the possibility of State intervention in this form seemed an intolerable menace to business privacy and private rights. To others it seemed but tardy official recognition of the vested interests which the public has in every business enterprise. To the boards themselves the new powers seemed as essential and natural as the right of a fire department to respond to an alarm without waiting for a joint petition from property owner and incendiary.

Be this as it may, the experience of Massachusetts and New York has been watched with interest in the United States and England and in other countries which are seeking some solution of the arbitration problem which can protect the interests of society without prejudice to individual freedom. The accompanying table gives a summary and analysis of arbitration and conciliation legislation in the United States at the present time. To show more clearly the extension of the system of State initiative, the organs of arbitration and conciliation are enumerated under two heads,— State organs with general jurisdiction under the first, local boards and committees under the second. It thus appears that California, Michigan, Montana, New Jersey, Ohio, Louisiana and Minnesota have followed the example of Massachusetts and New York in providing for State boards, making nine States in all. Three others, Colorado, Missouri, and North Dakota, have also approximated the same system to the extent of designating as official mediator the head of the public bureau most concerned with the relations of employer and employed. In eleven States there are provisions for local boards, variously constituted to represent the interests of employers and employees. Six States have the double provision for both the State board and local boards. Louisiana, Massachusetts, Michigan, New Jersey, New York and Ohio all assign to the State board

the important power of initiative in settling disputes.* In Missouri the commissioner of labor statistics and inspection may exercise a similar function; while in Maryland the board of public works has the privilege of proposing arbitration in the cases of any corporations in which the State is interested as stockholder or creditor. The composition of the boards varies slightly with local traditions, but calls for no special comment. The powers of the boards for the most part include the right to subpœna witnesses and examine documents like an ordinary court of record. Publicity is often expressly provided for; although it is to be regretted that there are not more uniformly provisions for a direct appeal to public sentiment by immediate publication of findings, as well as by formal report to legislatures or other bodies at stated intervals.

Moreover, it is particularly worthy of note that the federal government of the United States has so far followed the example of Massachusetts and New York as to adapt the system of public initiative in arbitration to the exigencies of interstate commerce. Besides the ordinary machinery of private boards, the law of 1888 provides that in disputes involving railroads and transportation companies engaged in interstate commerce, the President of the United States may tender the services of a temporary commission of three persons designated by himself,—one to be the United States commissioner of labor, and one a resident of the State in which the dispute arises. Obviously, this is a natural sequel to the prerogative which the government asserts under the interstate commerce acts, of determining what is "reasonable and just" or unreasonable and unjust in transportation rates.

Nothing could better illustrate the far-reaching importance which public initiative in mediation and investigation may under favorable circumstances assume, than the results of the commission appointed by the President to

* A Minnesota act creating a State board, said to have been passed in 1895, has not been examined.

investigate the Chicago railroad strike of 1894. The great influence upon public opinion of the somewhat too readable report submitted by that commission is well known; and the possibilities of further legislation in regard to interstate commerce arbitration, based upon the recommendations of that report, have already taken shape in the action of the Lower House of Congress.* From the point of view of the interstate employer, at all events, this double intervention on the part of the federal government, with a view to adjusting his relations to consumers on the one hand and employees on the other, is extremely suggestive. The proximity of compulsion and mediation in the two cases, and the apparent uncertainty as to any underlying principle which separates them, gives some ground for apprehension.

It is not my purpose here to discuss the work of these State boards in detail. As a matter of fact, their work, even quantitatively considered, is entirely respectable.†

* A bill repealing the present federal law, and making elaborate provisions for interstate commerce arbitration boards, passed the House of Representatives February 26, 1895. It was read twice in the Senate, and referred to the Committee on Interstate Commerce.

The current report of the New York Board of Mediation and Arbitration contains a counter-proposition, urging the desirability of action by the separate States rather than by the federal government.

† Some notion of the activity of the Massachusetts board may be gathered from the following summary: —

YEAR.	Cases cited in annual report.	Estimated yearly earnings of employees directly concerned.	Estimated yearly earnings of all employees in factories concerned.	Cost of maintaining board.
1886	4	—	—	—
1887	21	—	—	—
1888	41	$953,170	$5,735,992	$3,602.30
1889	26	3,084,000	10,162,000	3,433.38
1890	34	4,056,195	12,044,525	3,108.86
1891	30	2,307,000	9,038,750	3,592.36
1892	40	2,034,804	8,986,210	10,430.44
1893	36	1,652,246	8,637,625	3,980.00
1894	39	6,054,900	10,039,700	10,373.15

It should be noted that the action involved in the cases cited varies from a

They accomplish much more than they actually decide. Their work is largely preventive. They remove the last excuse for gratuitous resort to industrial warfare by employer or employee. They lend official dignity to the all-important principle of peaceful negotiation. They menace the guilty with the displeasure of a public opinion which is nowadays more and more frequently backed by money as well as by morals; and they strengthen the weak with the hope of aid against oppression. They stand for a generous recognition of industrial liberty as opposed to crass theories of compulsion. As the official organ of impartial investigation, they also remove the last excuse for unwise and unintelligent meddling on the part of public opinion.

In some parts of the United States the increasing tendency of organized public opinion to take sides in labor controversies, and furnish material as well as moral support, would be fraught with grave dangers if unaccompanied by dispassionate investigation and a rigid insistence upon a higher code of industrial ethics as a condition of such sympathy and support. It is often true that groups of public-spirited men and women who are thus anxious to see the right prevail may safely base their action upon the results of unofficial investigation by private parties. Such investigation has sometimes proved better and less perfunctory than official inquiry. There are, however, important instances in which prolonged struggle and mutual irritation have indisposed one or both of the contesting parties to tolerate careful investigation

tender and a rejection of mediation by telephone, to prolonged investigations and the preparation of price-lists and schedules with the aid of experts.

Similarly, the New York board has "received information of about four hundred and twenty-five strikes and lockouts occurring in the State of New York during the year ending October 31, 1894," and congratulates itself on having rendered an acceptable award "as final arbitrator" (on joint application) on eight different occasions. Here, however, as in Massachusetts, experience has convinced the board that its main usefulness lies in mediation and conciliation.

by persons, whose chief claim to attention is that they represent a certain amount of wealth and influence which is anxious to throw its weight upon the side of justice. In such cases it is obvious that error can be avoided only by thorough investigation by a responsible tribunal. Where State courts of arbitration already exist, they furnish the necessary machinery, with power to subpœna witnesses, compel the production of books and papers, and overcome the reluctance or irritation of employers or employees who would not submit to private investigation. Those who believe it their duty to take sides in these controversies cannot serve the cause of industrial peace better than by determined efforts to secure the investigation of such cases by State boards, and, on the other hand, by equally determined effort to impress upon labor organizations and upon employers that they forfeit their claim to public sympathy, if found guilty of precipitating industrial warfare without a genuine effort to secure redress by means of the machinery which is provided for this purpose by the State. Indeed, it is in such extension of their functions that efficient courts of arbitration may find great usefulness.

There are, however, frequent occasions where the tardy expression of a willingness or even anxiety to arbitrate must be regarded with some suspicion. Failure to recognize the disingenuous character of such offers has frequently led to the assumption that the burden of responsibility for refusing arbitration more often rests with employers than with employees. But, as a matter of fact, strikes are not ordinarily caused by refusal of employers to arbitrate. The experience of State boards and of private mediators shows how seldom employees make any resort to the machinery of arbitration provided by the State until after a strike has been tried with disappointing results. When employers prove obstinate and success seems doubtful, employees not infrequently take the next

best chance, and show a greater willingness to arbitrate than do their employers. Obviously, they have nothing to lose. If they cannot get what they want by a strike, they will take what they can get by arbitration. It is hardly fair for the opponent who has made deliberate choice of weapons, and chosen the most deadly, to call upon his adversary to drop the sword and take up the pen just when the issue seems unfavorable.

It is important, therefore, for public opinion to ask, first, Who began the fight? Second, With what weapons did the aggressor begin it? Third, What instruments has society placed at his disposal for obtaining redress? If society has not — formally or informally — provided adequate means of redress, no one can blame the individual for defending his own rights in his own way. But a *bona fide* offer of arbitration should always be required before society condones an appeal to force. No strike which has not been preceded by a genuine request for arbitration, and by failure of such request, should for a moment have the support of public opinion. Where State boards exist or other legal machinery is provided for settling disputes or securing an investigation which shall enlighten public opinion, such machinery must be set in motion before resort to industrial warfare can deserve any help in the form of editorials or subscriptions.

The increasing interest of the public in the issue and conduct of strikes, coupled with the desperate results attending them, has naturally raised the question as to the social expediency of tolerating strikes at all. Now that experience has shown that every big strike is certain to be accompanied by hoodlum violence, murder and sedition, it may be argued that society can better afford to deprive wage-earners of this organized power "to withdraw temporarily the supply of their labor from the market" than to suffer the graver evils attendant upon its exercise. On the other hand, it is also urged that, just in

proportion as public sentiment is inclined to curtail the use of strikes, it is bound to compensate wage-earners with other provisions for redress. "In other words, public prevention of strikes would seem in justice to involve, not, indeed, necessarily direct and immediate public intervention in adjusting the terms of the labor contract, but, at any rate, a public guarantee that the work-people shall not be prejudicially affected by the loss of the right of combination."* Whether the logical conclusion of such reasoning would be the substitution of some means of legal coercion for the physical coercion of strikes, need not detain us. It is sufficient for present purposes to turn the proposition round, and argue that, just in proportion as keener general interest and more efficient public sentiment afford adequate means of peaceful redress, resort to strikes is unjustifiable. It is not the right to strike, but the need to strike, which society will seek to disprove. From this point of view the right to strike is certainly being jeopardized, not only by the displeasure with which society regards attendant evils, but by whatever makes for the efficiency of peaceful negotiation.

Finally, the most important guarantee of industrial peace must be found in a better organization of labor. It is a commonplace of trades-union history that strikes are often symptoms of youthful instability and inadequate organization, or dangerous expedients adopted as a last resort for consolidating bodies which can only be held together by pressure from without. With strength and maturity come knowledge, conservatism, wise leadership, peaceful business methods. To those who are timid and prejudiced this doubtless seems a homœopathic paradox; and to the benighted few who still believe in the "crushing out" theory it is foolishness. Nevertheless, it is too late in the century to discuss the underlying principle of labor organization. It was as long ago as 1872 that the

*W. J. Ashley, M.A., *The Railroad Strike of* 1894. Publications of the Church Social Union.

English trades-unions, at their annual congress, passed the somewhat bold and ironical resolution that "papers in defence of the principle of trades-unionism are no longer in order." Some such resolution would be of the greatest use in the United States at the present time. It would at least narrow the field of controversy, and show us how far we have got. It would save time, it would save patience, it might even save trouble, if it could be fixed in the minds of all concerned — the employing class, the working class, and the looking-on class — that papers in defence of the principle of trades-unionism are no longer needed. It is the principle of voluntary organization, little else than the immemorial, instinctive right of those who work alike and think alike to act together for the double end of individual and social advancement. From the strictest view of economic theory it is everywhere conceded that "the thing most to be desired is that the working classes shall be so alert, active, and aggressive in pursuing their economic interests that the full pressure of that competition which is essential to the best conduct of trade and production may be applied to them steadily and unremittingly, without any danger of their sustaining injury therefrom." * We have long since learned that it was the capitalistic organization of modern industry which was the aggressor, not the labor organizations which took the first step in combination. As long as the employer attempted effectually to deny the right of organization, and as long as public opinion lent even feeble countenance to such repression, it was enough to fight for a principle. The question of method was perhaps of secondary importance for the moment. It is time now for employers themselves to realize that whatever equalizes the opposing forces ministers to the safety and stability of the social and industrial edifice, and to join public opinion in insisting on better organization of labor. For the absence of responsible and stable organiza-

* Francis A. Walker, *Scribner's Magazine*, November, 1887, "What Shall We Tell The Working-Classes?"

tion is one of the chief obstacles in the way of arbitration and conciliation.

While, therefore, papers in defence of the *principle* of trades-unionism are no longer in order, the question of method still remains. The right of association is well enough, but it is only half the story. People forget that rights always imply correlative duties, and that the right to organize carries with it the obligation to organize well. It is time to meet champions of labor on their own premises, and insist that those who class themselves as dealers in labor shall conduct their operations on strictly business principles. Organizing for the sale of labor or for the temporary withholding of labor from the market by means of strikes must be looked upon as business, and business of the most serious kind, to be safe-guarded, like other businesses, in proportion to attendant social risks. Before the representatives of labor can expect to secure equality of treatment from the representatives of capital, there must be some closer analogy in the respective positions, powers, and responsibilities of the negotiating parties. Ignorance of this fact too often leads public opinion to condemn, as a confession of guilt or an arbitrary assumption of superiority, the alleged reluctance of employers to treat on terms of equality with the "representatives of labor," when in reality the reluctance is often based upon unwelcome experience as to the futility of making elaborate contracts for the future delivery of labor with so-called "agents," or "leaders," or "representatives," who have no legal status and no real control over the commodity they profess to sell. Often it is little more than a mockery to insist upon applying the formalities of business to agreements in which only one of the contracting parties is in a position to supply the ordinary guarantees of performance and good faith. That employers sometimes weary of the farce is not to be wondered at; that labor organizations are willing to insist

upon it shows how unprepared they are to meet the demands of industrial equality.

Is the average labor organization which figures in public disputes capable of giving as well as receiving, of forfeiting as well as of receiving forfeits, of giving guarantees for the execution of its contracts equal to the guarantees it exacts from employers? Here is a neglected aspect of labor disputes,—the imperfect organization of at least one of the contesting parties. Trades-unions have no business to attempt the most serious transactions, of most far-reaching importance to society, with the flimsiest organization back of those undertakings. Society does not tolerate even common business without some guarantee of adequate organization and earnest of good faith. Much more, then, in this business of "buying and selling labor," of stipulating wholesale for future delivery of vast quantities of this most perishable of all commodities, should the interests of the purchasers and of the public at large receive adequate guarantee in the form of adequate organization. Still more important is it that a body which undertakes to enforce its demands by methods involving public risks and public inconveniences, which assumes the responsibility of appeal to industrial warfare, should be sure that its organization is sound, its forces disciplined for the determined self-restraint of such a combat, its resources adequate and available to repair the damages which imperfect organization or bad discipline may produce.

No labor organization which presumes to go into the business of contracting for the sale and future delivery of labor should therefore receive the support of public opinion until it has been properly organized under the laws of the State, until the permanence and financial responsibility of the organization is vouched for by a certain term of peaceful existence and an adequate deposit of guarantee funds. A minimum of peaceful activity and

a guarantee reserve fund in proportion to membership should be a condition of recognition.

Happily, we are not without precedent in this matter. England has furnished the best examples of responsible labor organizations and of the power of intelligent and discriminating public opinion in regard to them. It is not surprising, therefore, to learn that the recent settlement of a great boot trade dispute, early in 1895, has exemplified what is involved in a self-respecting claim to equality in dealings between employers and employees, by providing for an equal deposit of money on both sides, as pledge of their intention to be bound by the agreement. The agreement provided that immediate steps should be taken to draw up piece-work statements for lasting and finishing piece-workers and for the welted work at Northampton, the employers to have the option of payment by time or piece. These statements were to be drawn up by a joint committee of employers and operatives, and any differences were to be determined by an umpire. Boards of arbitration are to settle all questions submitted to them concerning wages, hours of labor, and conditions of labor which cannot be settled mutually by employer and employed. "There have been many boards of conciliation before to-day, but they have always lacked effective means of enforcing their decisions. It is a novel and important feature in this agreement that an attempt is made to provide a sanction for their decrees. . . . The two parties to the settlement have deposited sums of £1,000 each with Sir Courtenay Boyle and Sir Henry James in accordance with the terms of the agreement. . . . Mr. Ward, president of the Federation, addressed a meeting of Leicester manufacturers on the terms of settlement, which he described as a charter of rights for the manufacturers, under which three-fourths of the disputes which afflicted their industry would be rendered impossible." *

* *Times*, April 26, 1895.

Better organization, then, is an important remedy, because it brings more definite responsibility and facilitates negotiations between employer and employed. It is no sufficient answer to say that by better organization power for harm is increased along with the power for good. Without the power, there is the certainty of evil; with it the possibility of evil and of good. There is nothing peculiar in these conditions of industrial progress. Political power and political progress teach the same thing. The dangers of political power in the hands of ignorant, of selfish, of anything less than well-intentioned and well-informed men, are too painfully familiar. Yet the course is forward, not backward. It is in education that we seek the remedy, not in repression,— in education in the broadest sense; education in the duties and the responsibilities which come with power, in the severe discipline of disappointment and failure attending unwise acts. The errors of this laboratory method of education are costly. No one can deny it. Errors in politics have taught us how costly; errors in industry — strikes, lockouts, violence, murder, assassination, sedition — are teaching us to-day. There is no royal road. Often it must needs be that offence cometh; but woe unto him by whom the offence comes!

It is for this reason that these State courts of arbitration deserve greater attention and encouragement. The comparative smallness of their accomplishment is an impeachment, not so much of their efficiency as of public intelligence and appreciation. If at times their work has been perfunctory, or lacking in thoroughness or promptness or tact, it is, in fact, the fault of a listless or ignorant public, which has failed to sustain the efforts of men who, in their capacity of official peacemakers, must be singularly dependent upon the support of public sympathy and criticism. If conciliation and mediation in the name and with the authority of the State are to accomplish what they may and what they ought to accomplish, public opinion

must look to it, not only that the name and authority of the State are worthily represented, but that they are respected both by the disputants to whom the claims of society in regard to the conduct of private business are presented, and by society itself. No one can be said to bear exclusive reproach in this matter. Theoretical students are often indifferent to the methods and results of these practical experiments. Business men and corporation managers often cultivate an ironical contempt for what they affect to regard as a harmless bit of official philanthropy in general, and a piece of official impertinence in particular — when personal experience chances to force upon them a recognition of the serious intent of the law. Trades-unions also fail to treat the name and authority of the State with respect,— sometimes through ignorance, prejudice, or distrust of the official tribunal, often through distrust of their own cause or overweening confidence in their own power to coerce. Coupled with all this, is the unfortunate certainty that public opinion will not hold either employers or labor organizations to any strict account for the social injury resulting from deliberate neglect of peaceful methods and deliberate choice of the deadly weapons of industrial warfare.

The increasing cogency of public opinion in these matters is everywhere manifest. In England the rapid progress in this respect has been clearly marked by successive stages. Formerly the steadily growing sentiment in favor of arbitration and mediation found expression at critical moments in the intervention of distinguished men, acting in a private capacity, but carrying the prestige of a national reputation. A significant step in advance was the *semi-official* mediation of a distinguished member of the government in settling the great coal strike of 1893. The letter in which Mr. Gladstone invited the Miners' or Coal-owners' Federation to send representatives to a conference to be held forthwith under the chairmanship of Lord Rosebery contains the following significant passage: —

. . . The attention of her Majesty's government has been seriously called to the wide-spread and disastrous effects produced by the long continuance of the unfortunate dispute in the coal trade, which has now entered on its sixteenth week. . . .

The government have not, up to the present, considered that they could advantageously intervene in a dispute the settlement of which would far more usefully be brought about by the action of those concerned in it than by the good offices of others. But having regard to the serious state of affairs referred to above, to the national importance of a speedy termination of the dispute, and to the fact that the conference, which took place on November 3 and 4, did not result in a settlement, her Majesty's government have felt it their duty to make an effort to bring about a resumption of negotiations between the employers and employed, under conditions which they hope may lead to a satisfactory result.*

Recently, also, there has been a further disposition to facilitate arbitration and mediation by means of permanent and recognized organs; and the majority of the Royal Commission on Labor expressed a desire "to empower municipal and county councils to establish industrial courts to decide questions arising out of existing contracts or trade customs, to give one of the central government departments an adequate staff, with adequate means to procure, record, and circulate information relating to the work of voluntary conciliation boards, and by advice and assistance to promote their more rapid and universal establishment, and to give a public department, on receipt of a sufficient application from the parties interested or from local conciliation boards, power to appoint a suitable person to act as arbitrator, either alone or in conjunction with local boards or with assessors appointed by the employers and workmen concerned.

"On the other hand, the minority consider that it would be more advisable to grant adequate power to the Labor Department to obtain the fullest possible information about the facts of every dispute, the actual net wages earned, the cost of living, the salaries and interest

* *Weekly Times*, November 17, 1893.

paid, the employer's profit, and such other details as may seem material."*

It is impossible to shift the responsibility all upon our legislators, law-makers, and executive officers. Public opinion is not only theoretically, but practically, more powerful and more responsible. It is public opinion which makes and unmakes majorities. The trouble is, industrial practice and ideals are still lagging behind in a feudal stage. The feudalism of our industrial ethics is revealed by the outbursts at Homestead and Chicago, and by the chaotic condition of public opinion in regard to such outbreaks. The cause lies in the rapid growth of industrial conditions which are new to us, to which we are not yet adjusted, which we do not fully understand. There is no hope of avoiding such demoralizing collisions until public opinion progresses to a more civilized appreciation of individual and corporate rights and responsibilities. Unhappily, a weak sentimentality sometimes prevails over the sober judgment of those who form the most active and efficient part of public opinion in regard to labor disputes. Belief that the laborer engaged in a strike has a real grievance is allowed to outweigh the greater grievance which society has against those who forfeit their claim to consideration by resort to war without even the formality of peaceful overtures. If society is to escape the unpleasant dilemma of a prolonged period of industrial warfare or a temporary relapse into the maternal tutelage of stricter regulations, public opinion must concede more duties as well as rights to industrial organizations; it must provide itself with the best means of accurate judgment in blame or praise of contending parties; and it must rouse the public conscience enough to make the blame or praise effective.

EDWARD CUMMINGS.

*Speyers, *The Labour Question*, p. 227.

THE QUANTITY-THEORY OF MONEY.

THE quantity-theory of money is simply an expression, with reference to a special case, of the general law that value is determined in the relation between demand and supply. Prices being nothing more or less than values expressed in terms of money, those who hold the quantity-theory merely point out a specific instance for the application of a principle which has been established by competent induction, and the applicability of which is not challenged in any other instance within the view of the political economist. It is not, therefore, for those who hold this theory to prove their case. It rests upon the critics of that theory to show some reason why a principle, admitted to be otherwise of universal application, should be suspected of failing at this point.

The cause of the incredulity which has attended the quantity-theory is found in the difficulty of defining the terms demand and supply, when used with reference to money. The elements of the case are necessarily complex and elusive. The demand for money arises from the fact that there is a certain amount of money-work to be done; that is, exchanging has, to a certain extent, to be effected in that community through the use of this agent. In the situation existing — the quantity of goods to be exchanged being such as it is, prices ruling as they have done, producers and consumers living at such distance from each other as may be the case, the habits of the people as to carrying and using money being what they are, the machinery of exchange being what it is — there is occasion for a certain exercise of the money-function in that community. The money-function cannot be exercised in a lower degree than is thus required without personal inconvenience and economic loss. Shall we say

that the demand for money is determined merely by the amount of goods to be exchanged? No. Many of these goods may conveniently be exchanged directly against each other in barter, or indirectly through the intervention of commercial and financial credit, without the use of money. Such goods do not constitute a factor in the demand for money. Even when we know the amount of goods which must be exchanged through the intervention of money, we have still to inquire how often each commodity may require to be thus exchanged. On the other hand, the supply of money is not determined solely in the number of money-pieces of a certain denomination or denominations available to do the money-work. We must also know the rapidity of circulation. "The nimble sixpence does the work of the slow shilling." In a community possessing in a high degree the agencies of transportation and transfer — railroads, parcel express, post, and telegraph — a given volume of money-pieces might conceivably do two or three times as much of the money-work as in a community more backward in the respects indicated. To resume, the demand for money and the supply of money are both quantities of two dimensions.

When the demand for and the supply of money are thus stated and explained, it is difficult to see how any economist can take exception to the proposition that, other conditions remaining the same, an increase in the quantity of money must raise prices and a decrease in the quantity of money must lower prices. Since money is actually exchanged for goods, since people do give for it that which they have earned by labor and abstinence and risk, it is clear that prices — that is, the value of money — must be fixed by a sufficient cause. It cannot be a matter of whim or a matter of accident. There must be some reason why the producer sells his goods for so much money, and not for more and not for less. There must be some competent force which compels him to give as

much as he does, which releases him from the necessity of giving more than he does. What is that force? In regard to all exchanges of goods for goods or goods for services, under all conditions and in all places, the answer universally accepted is, "Demand and supply." Some powerful reason must be shown for asserting that any other principle governs in the exchange of goods or services for money.

II.

In the March number of the *Journal of Political Economy* Miss Sarah McLean Hardy has an article entitled "The Quantity of Money and Prices, 1860–92: An Inductive Study," in which she takes up for examination the quantity-theory of money, reaching very disparaging results. Dr. Hardy starts out with characterizing the quantity-theory as abstract and hypothetical, and therefore requiring, prior to acceptance, to be submitted to inductive verification. She calls it "an *a priori* law," a "hypothetical, deductive law" needing to be compared with "observed facts," and speaks of it as an instance of "pure abstraction." Starting with such a view of the theory in questions, he finds it impossible to verify the theory inductively with any great degree of satisfaction. Now, I must take issue on this point at the outset. The principle that value is determined in the relation between supply and demand — that is, the quantity-theory *in general* — has been abundantly established by competent induction. The only hypothesis in the case of the quantity-theory *of money* is that demand and supply have the same dominion and potency here which they have in all other cases of exchange. It is assumed that a principle admitted to be otherwise of universal application can safely be applied to this particular instance, no reason why it should not be so applied having ever been

adduced. Since goods are sold for money and money is exchanged for goods, the advocate of that theory has a right, in the absence of any reason to the contrary, to take it for granted that the universal law of exchange governs here. This is all the hypothesis there is in the quantity-theory of money; and that assumption is no more violent than would be the assumption of a learned and skilled physicist, making observations in a region never before visited, that the law of gravity reigned there as elsewhere, and that the atmosphere of that place, as of other places, was composed of oxygen and nitrogen, with possibly a dash of argon.

But, while declining thus to concede that special inductive verification is necessary to establish the quantity-theory of money, in the absence of any ground for questioning the application here of the general principle governing exchange, one can have no reason for objecting to such an inquiry. What, then, is the scope of Dr. Hardy's investigation? In certain tables and diagrams she places in comparison: (1) the "volume of currency each year, from 1860 to 1892 inclusive; (2) prices, for the same period, according to an index number; (3) the transactions of the New York Clearing House; and (4), for the period of 1862 to 1878 inclusive, the value of gold in United States currency. It is from such a comparison that conclusions are derived unfavorable to the quantity-theory of money.

To begin with, it is to be regretted that Dr. Hardy has not made the currency table one of per capita, and not of aggregate, currency in circulation. During the thirty-three years — the traditional life of a human generation — covered by this table, population in the United States considerably more than doubled. Had the table given the figures of the per capita circulation, the effect upon the eye and the mind of the reader would have been very different. For instance, instead of the currency of 1890

standing to that of 1860 in the ratio of 328 to 100, the ratio would have been 164.8 to 100. In other words, the currency would have shown a per capita increase of only 64.8 per cent. instead of 228 per cent.,—a notable change, indeed! It is true, as Dr. Hardy says, there is no absolutely necessary relation between an increase of population and an increase in those trade transactions which require the use of money;* but it stands to reason, most conspicuously, that, except for a revolution in other conditions, to double the population of the country is to require some increase, and a considerable increase, in the demand for money, whether that increase shall be exactly 100 per cent. or less or more. It is true that a comparative per capita table of monetary circulation would still contain its own elements of doubt and difficulty; but this seems no good reason for introducing an additional and altogether unnecessary element of confusion and error. If Dr. Hardy allowed for the growth of population, she would manifestly come much nearer the truth than by not allowing for it. The assumption that a twofold population would require a twofold circulation, clearly may be, in its own degree, erroneous; but the assumption that a twofold population, spread over a vastly greater area, would not require any more currency is certain to contain a larger amount of error. In a quantitative investigation the difference between a 64.8 per cent. increase and a 228 per cent. increase is not immaterial.

Yet, even if we correct these tables by introducing the per capita element, it still remains true, as Dr. Hardy has stated, that, in general, while the "volume of currency" has increased, and increased largely since 1860, prices have declined, or at least have declined since 1865. It

*In illustrating this, Dr. Hardy says: "An increase in population does not necessarily imply an increase in transactions, for it is a well-known fact that there are great differences in productive power among men. Compare, for example, two nations like China and the United States or Mexico and Holland" (p. 161). But in the case under consideration Dr. Hardy is not comparing two nations of different productive power.

is this result which leads Dr. Hardy to the conclusions: "(1) that that dogma, in its general theoretical form, is inapplicable as an explanation of this given set of actual conditions; (2) that, so far as it may be at all valid, its influence in determining the level of prices is of far less importance than is commonly supposed; (3) that prices, from 1861 to 1891, were fixed in the main by other causes than the quantity of that kind of money which was in circulation during those years."

Now let us see just what it is which, in Dr. Hardy's opinion, justifies conclusions so important,—what statistical evidence is relied upon in thus cutting down the scope and validity of the quantity-theory of money. She compares the "volume of currency" with the average annual prices for a considerable term of years, and finds that, in general, in spite of a steady increase in the volume of currency, there has been a decrease, more or less intermittent and spasmodic, in prices. But is it sufficient to put together merely the volume of currency — that is, the supply of money — and the corresponding prices, without even attempting a quantitative statement of the demand for money? Dr. Hardy would appear to think that the quantity-theory of money is in effect this: that, if the actual quantity of money is increased, prices must rise; if the actual quantity of money is diminished, prices must fall. Now, no economist of reputation ever held such a theory, however loosely some may have written upon the subject. The quantity-theory of money, by its very statement, takes into account both the supply of money and the demand for money. Dr. Hardy's tables and diagrams do not refer to the latter element, even by so much as an interrogation-point. We have already seen that, in making the table of the "Volume of Currency" an aggregate and not a per capita table, Dr. Hardy threw out of consideration the influence of a population more than doubled during the period covered by the investigation. We now see that she does

not even give so much as a blank column to the demand for money,* although the demand for money is just as much a factor in determining prices as is the supply of money. Such an investigation can scarcely be deemed conclusive. Dr. Hardy shows that the volume of currency — *i.e.*, the supply of money — increased steadily and largely from 1860 to 1892. She has not shown that the demand for money did not, during the same period, increase even more rapidly, thus completely justifying the quantity-theory. According to that theory prices do not necessarily rise because the supply of money increases. Prices only rise when the supply of money increases relatively to the demand.

And right here let me take issue bluntly with the writers of the gold monometallist school generally, Mr. Wells, Mr. Horace White, Mr. Atkinson, Professor Sumner, and others, regarding their unverified assumption that it is in the nature of an advancing industrial civilization to require smaller and still smaller amounts of "the circulating medium." These writers are never tired of dilating upon the function of the bank and the clearing-house in saving the use of money. They descant upon the statistics, partial, fragmentary, and unreliable as they are, which show the comparatively small proportion of cash payments; and they meet every statement or assumption as to the importance of the money-supply with assertions

* Dr. Hardy says (pp. 157, 158): "According to the *a priori* law [*i.e.*, the quantity-theory] either the amount of currency should have decreased or prices should have risen. But neither of these events has taken place." Here is no recognition of a possible increase in the occasions for the use of money. Again, she says, referring to the fall of prices, 1865–92, accompanying an actual increase in the volume of currency: "The quantity-theory, if operative at all, has been overbalanced or checked by some other stronger force or forces. Some disturbing causes have intervened to produce effects for which the quantity-theory can give no explanation, for the understanding of which it is very irrelevant" (p. 158). According to this, an increase in the demand for money, arising from a growth of population or a multiplication of commodities or changes in the habits of the people in regard to carrying and spending money, is "a disturbing cause," contravening the operation of the quantity-principle, instead of being an essential and necessary element in the determination of prices.

that the money-supply has really ceased to be of any practical consequence, as a result of the extension of credit-agencies and instruments.

Now, it is perfectly true that credit-agencies and instruments, in any high state of industrial civilization, effect an enormous saving in the use of money. But it is at the same time true that, in spite of all which credit-agencies and instruments can do, after the efficiency of banks and clearing-houses is exhausted, the whole tendency of modern civilization has been to increase the demand for actual money. At the beginning of the present century the people of the United States enjoyed a minimum of credit-agencies and instruments; and yet the volume of currency was, so far as we can make out from the incomplete statistics of circulation, less than one-half, per capita, what it was sixty years later, in spite of the fact that, during the interval, banks by the hundreds and clearing-houses in a half-score of cities had come into existence, transportation had been enormously quickened, the telegraph had been introduced, and in a hundred ways the efficiency of a given body of money had been increased. And to-day, thirty-five years later still, while credit-agencies and instruments have been enormously improved and entirely new means of communication, like the telephone, have been introduced, the people of the United States are using far more money than they did in 1860; and yet the sole sign of inflation — namely, rising prices — does not appear. The simple explanation is that the multiplication of commodities due to the increased facilities of production, the marvellous increase of travel, and changes in the habits of our people with respect to carrying and spending money, are continually creating a demand for a larger and still larger volume of actual money, in spite of improved agencies of exchange and rapidly multiplying instruments of credit.

FRANCIS A. WALKER.

THE ORIGIN OF INTEREST.

In the last number of this *Journal* * Professor J. B. Clark has given in some detail his views upon the origin of interest, and has there placed in opposition to my theory his own theory of "permanent capital" and its "specific productivity." I have, however, already set forth at such length in my last article † the considerations which forbid me to accept as a really scientific explanation of interest his brilliant but somewhat dangerous speculations, that it would be too great a strain upon the reader's patience again to take up that matter. We have each put our views clearly and fully before the public for public approval or disapproval.

Upon a few new points made by Professor Clark, however, I wish to say a few words, not in order to advance opinions, but merely to substantiate facts.

1. Professor Clark seems to assume ‡ that I have in my last article "*introduced* into the problem for the first time" the case of money, representing money as a species of "goods" manifesting the difference in value between present and future goods. In this he is mistaken. For in many, and in some of the most important, passages of my *Positive Theory of Capital* I have used money as an illustration of the proposition that present are worth more than future goods.§

2. Again, Professor Clark seems to regard my theory of interest as a sort of abstinence theory. He believes that, so far as my theory of interest is concerned, production

* Article entitled "The Origin of Interest," in vol. ix., No. 3, p. 257, *seq.*

† See vol. ix., No. 2, pp. 113–131. ‡ "Origin of Interest," pp. 262–264.

§ For example, *Positive Theory*, pp. 249 ("present shilling" compared with the "future shilling"), 250 ("most goods, and among them *particularly* money," etc.), 251, 255, 256, *seq.*, 276, 286 (the case of loans), 304, 375, 415, *seq.*, etc.

periods are significant, because "there are in society persons who must wait through such intervals in order to have their wants gratified" (p. 259). This waiting for the gratification of wants, this undergoing of a temporary privation, he calls a "time sacrifice" (p 259); and he believes that in my theory I make interest a payment or compensation for this sacrifice. "In the study of Professor v. Böhm-Bawerk loan interest is the consideration for this. It is a payment for vicarious waiting" (p. 259). "There must be" — if my theory is true — "actual persons . . . who demand and get pay for this waiting" (p. 260). Likewise, on page 265, he speaks of a "sacrifice for which" — according to my theory — "a capitalist earns his income." And he urges against me the objection that in a static condition of society no one makes such a sacrifice and "no true abstinence is practised" (p. 260), although there is none the less in such a society an earning of interest.

A total misunderstanding of my theory underlies the above conception of it,— a misunderstanding which I confess not a little embarrasses me; for, if misunderstanding is possible even here, I do not know how to avoid misunderstanding. In my book on *Capital and Interest* I have devoted one whole chapter to *combating* the idea that interest is a reward for abstinence on the part of the capitalist.*

On page 363 of my *Positive Theory* I have expressly stated that by "the much abused expression, Reward of Abstinence, the existence of interest cannot be theoretically explained; one cannot hope in using it to say anything about the essential nature of interest; every one knows how much interest is simply pocketed without any 'abstinence' that deserves reward!" Furthermore, I have emphatically and repeatedly laid it down that, as a rule, capitalists do not forego any personal indulgence

* *Capital and Interest*, Book IV. pp. 269–293.

when loaning or investing productively their present goods. For they would not, even in the absence of such an opportunity for investment, consume their capital stock at the present moment, but would in any event preserve it to provide for themselves in the future. In other words, for them the subjective use-value of present goods is no greater than that of future goods (for example, pp. 315, 330, 375). Therefore, I do not at all hold — nor is it a presupposition of my theory — that any one must suffer want or hunger during the periods of production. My theory, on the contrary, hinges upon the objective fact that certain fruitful methods of production are "time-robbing," or demand a "sacrifice of time" in the sense (as explained on page 82) that "they procure us more or better consumption goods, but only at a later period of time." The remaining steps in the explanation are as follows: Time-robbing, roundabout methods of production, can of course be employed only when one is provided for the interval with finished present goods (so provided to the very end that one shall *not* in that interval suffer want). The disposal of present goods becomes thus a condition to the employment of more advantageous methods in production: hence that active and intense demand for present goods, the supply of which is always limited, which finally gives rise to an agio upon them; *i.e.*, to interest. In this exposition it is nowhere presupposed that any one suffers from leaving present wants unsatisfied, or that any one practises painful abstinence. Nowhere is interest explained as a compensation for a special personal sacrifice undergone by the capitalist or by any one else; but it is explained simply as the result of the objective fact that the commodity "present goods," which the capitalist holds in his hand, has a greater value than the commodity "future goods" for which he in any way exchanges the former commodity. Or, as I have expressed the matter on page 336 of my

Positive Theory, interest is the "legitimate consequence of the constant fact that present goods are more useful and are more desired than future goods, and that they are never present and offered in unlimited abundance. This agio [*i.e.*, for present goods], thus organically necessary, is given directly on the loan market in the shape of interest, while on the labor market it is given in the form of a price for labor which remains under the amount of the future product of labor."

I agree fully with Professor Clark that interest is a "static income," and that it owes its origin to "static causes"; also that "creating new capital is not a part of the process by which interest is secured" (p. 260). Finally, I can also let pass as true in a certain sense his thesis that "no true abstinence is practised" in the mere preserving of capital unimpaired. But, when Professor Clark wishes to deduce from this case of interest without true abstinence an argument against *my* theory, I reply: this *can* be an argument against a theory which makes use of abstinence in its explanation of interest, but not against my theory.

3. The lengthening of the periods of production plays an important part in my theory. Upon this point Professor Clark, on page 270 of his article, expresses himself as follows: "If we try to follow the effect of the action of a tool forward to a point at which consumers' goods, and these only, remain as a result of its action, we shall follow it forever without reaching what we seek." And to this he adds the following remark, evidently expressing an objection to my theory: "Productive periods begin with civilization and never end. *It is not possible to lengthen them.*"

The reader of my *Positive Theory* will find the same thought expressed in almost the same words on page 88. But he will find also in connection therewith a detailed exposition of the fact that there are two ways of com-

puting the length of production periods. One may have reference to the "absolute period," which is computed "from the moment on which the first hand was laid to the making of its first intermediate product right down to the completion of the good itself." Of the production period in *this* sense everything holds that Professor Clark has said, and I have anticipated him in remarking this on page 88 of my *Positive Theory*. But one may also have reference to the period "which elapses *on the average* between the expenditure of the original productive powers, labor, and uses of land, as successively employed in any work, and the turning out of the finished consumption goods." This second way of counting the length of the production period I have explained very fully on pages 89 and 90 of my *Positive Theory;* and among other things I have shown that a lengthening or shortening of the period is possible, and how it is so, in this sense. It was for that reason that I expressly added (p. 90): "Where I have spoken above of extension or prolongation of the roundabout process of production, and of degrees of capitalism, *I must be understood in the sense just explained.* The length or the shortness of the process, its extension or its curtailment, is *not* to be measured by the *absolute* duration of the period that lies between the expenditure of the first atom of labor and the last. . . . But it is to be measured *by the average period* which lies between the successive expenditure in labor and uses of land and the obtaining of the final good." Professor Clark's argument that in a certain *other* sense a lengthening of the production period is not possible, therefore, again seems to me to be an argument directed against a theory which I do not hold.

That the lengthening of the period in *my* sense, as a rule, goes hand in hand with an increase of invested capital, is just as evident in the light of my theory to me as it can be to Professor Clark in the light of his theory.

That he differs with me as to which is the cause and which the effect in this lengthened production period and increased capital investment is due to the difference in our fundamental views. This difference I will not here again discuss.

4. On pages 273 to 275 Professor Clark cites the case of two mills, a water-mill and a steam-mill, which yield the same rate of interest on capital invested, though their "production periods" are of unequal lengths, the production period of the water-mill being much longer because of the long life of the dam, race, wheel-pit, etc. He finds in this example proof that production periods "may be lengthened or shortened without affecting the productivity of industry" (p. 275), and evidently thinks he has here brought forward an argument against my assertion that lengthening production periods makes productive processes more fruitful.

I shall not discuss the example at length. For the benefit of those who may care to look into the matter more closely, however, I would observe that Professor Clark's argument seems to me to rest upon an ambiguity, which he has evidently overlooked, in the use of the word "productivity." By equally great "productivity of industry" in the case cited he means equally high rates of interest on the capital invested. In my theory, however, the term has reference to an entirely different matter. It there refers to the consideration whether for the expenditure of a unit of original productive powers — *i.e.*, for each day's or each month's labor — a man gets equally great products or products greater in some instances than in others.* These are two very different matters; and the reader will readily perceive that, in the case of production periods of unequal lengths, equal productivity in the first sense and equal productivity in the second sense, not only *need* not, but *can* not coincide with each other.

*See, for example, *Positive Theory*, pp. 82, 260, *seq.*

By way of a simple illustration let us assume that the expenditure of one hundred days' labor, wages being at two dollars a day, will produce at the end of a production period of one year one hundred articles worth each two dollars and ten cents. Upon an invested capital of two hundred dollars this yields a profit of ten dollars in one year or an interest of 5 per cent. Were the production period two years and the technical productivity the same,— that is to say, were the product of one hundred days' labor and a production period of two years only one hundred pieces of the same commodity,— then there would be a profit of ten dollars upon a capital of two hundred dollars invested for two years.* The capital would therefore bear only 2½ per cent. interest; and the "productivity of industry," as Professor Clark understands the phrase, would be lessened. If productivity, in Professor Clark's sense, is to remain undiminished, "technical productivity," as I use the term, must evidently be greater in the process extending over a period of two years. If in the two-year period one produces with one hundred days' labor one hundred and five pieces of the commodity, there is a final return of two hundred and twenty dollars and fifty cents, or an interest upon the capital of 5 per cent. per annum.

And this is true of Professor Clark's illustration. If the average production period and period of investment of capital are really greater in the case of the water-mill, then the technical productivity of the labor spent upon the water-mill must also be *greater*, in order to secure to the capital invested the *same* rate of interest for the *longer* time! Equal "productivity of industry" in Professor Clark's sense, therefore, necessarily involves "unequal productivity" in my sense of the term; and the illustra-

*In order not to complicate the illustration, I assume in each case that the entire capital is spent at the beginning of the production period. Under more accurate assumptions the figures would be altered, but the principle would still hold true.

tion is therefore a substantiation rather than a refutation of my view.

I may add that in my *Positive Theory* I have anticipated such objections as Professor Clark now brings forward. I was quite aware that in the production of the same article production periods of unequal duration are frequently employed, and that the greater technical productivity of the longer periods may be exactly counterbalanced by heavier interest charges. The reader will find a typical exposition of such a case on page 397 and following, and similar expositions on page 304 and following, and pages 404 to 406. What is said in the last-mentioned passages about "different branches of production" applies in exactly the same way to different methods of producing the same commodity.

E. BÖHM-BAWERK.

VIENNA.

VON THÜNEN'S THEORY OF NATURAL WAGES.

II.

CRITICISMS OF THE FORMULA: NATURAL WAGES $= \sqrt{AP}$.

THÜNEN'S theory of wages holds a peculiar place in German Economics. Important as the theory is, it is unmentioned in the majority of German works,—a fact which Falck and Komorzynski attribute to the abstruse mathematical character of his method. But even among the few critics that Thünen has had there is a lack of harmony concerning the correctness of his work: some accept his mathematical results in their entirety; others accept a part, and refuse the rest; while still others reject his results *in toto*.

In the following pages my purpose is to endeavor to show that those critics who have offered the strongest objections to the correctness of Thünen's results have either overlooked the limited premises from which he started, or forgotten the hypothetical nature of his conclusions. At the end I shall try to expose the error which, so far as Thünen's own work is concerned, vitiates the correctness of his formula.

1. Let us examine first the position of Falck, who was one of the last to devote a monograph to Thünen's work. The main object of Falck's dissertation is to prove the mathematical inaccuracy in the formula for natural wages. He claims that the formula $\sqrt{ap}$ "is the keystone of Thünen's whole system"; and, if you reject it, his "system loses all practical importance." *

*Falck, *Die Thünen'sche Lehre vom Bildungsgesetz des Zinsfusses und vom naturgemässen Arbeitslohn*, p. 32.

He proceeds in his argument as follows: Thünen obtained the formula $\sqrt{ap}$ from the expression $\frac{[p-(a+y)]\,y}{q\,(a+y)}$. If we represent this expression by R, then

$$R = \frac{[p-(a+y)]\,y}{q\,(a+y)} = \frac{py}{q\,(a+y)} - \frac{y}{q} = \left[\frac{p}{a+y} - 1\right]\frac{y}{q}.$$

From the last expression we find, when $y = o$, the value of R becomes o. In other words, when wages are reduced to the bare means of subsistence, the rent of the capital-producer vanishes. This fact seems to startle Falck; and, forgetting that Thünen's work has nothing to do with actual conditions, but is based upon purely hypothetical conditions, he claims that the phenomenon indicated by the expression can have no economic cause, "since we can daily convince ourselves that, as a matter of fact, in many places wages are reduced not only to the bare means of subsistence, but even below that amount, while the income of the capitalist not only does not vanish, but may increase." * He infers, therefore, that there is a mathematical error in the expression; and he claims to prove the error by the following argument: —

"The formula $\frac{[p-(a+y)]\,y}{q\,(a+y)}$ was obtained from the formula $\frac{n\,[p-(a+y)]}{\frac{nq\,(a+y)}{y}}$. The numerator denotes the rent from the farm, the denominator the number of those among whom the rent is divided. But is the y of the denominator really equivalent to the y of the numerator?" He denies that the y's are equivalent, asserting that the "y of the numerator denotes the surplus that is paid to the laborer at this particular time; but the y of the denominator denotes the surplus of wages that existed before the laying out of the farm." "Only by placing these two y's equal to each other," he claims, "has it been possible for the rent to obtain a maximum value at a definite rate of wages." †

Falck is under the impression that the rate of wages which exists before the laying out of the farm is different

* Falck, p. 34. † *Ibid.*, p. 35.

from the rate that exists after the farm is completed. As this is an error into which several critics have fallen, it will be well to show that, in supposing a number of laborers to combine in laying out a marginal farm, Thünen proceeds on the assumption that natural wages exist in the isolated state before the farm is begun, and that the supposition is introduced merely as a means of ascertaining the mathematical expression for the prevailing rate of wages. Thünen attempts to place such conditions upon the isolated state, that natural wages not only can be realized, but are realized; and his main problem is to find the mathematical expression for such wages.

Let us briefly review the chief limitations that he places upon the isolated state. He assumes that the isolated state is in a static condition; that the laborers are equal in intelligence, skill, etc.; and that perfect competition pervades the entire state. He assumes that beyond the margin of cultivation there is a limitless territory whose fertility is equal to that of lands already under cultivation, and he maintains that the rate of wages and the rate of interest existing at the margin of cultivation determine the rate of wages and rate of interest throughout the entire state. With these conditions placed upon the isolated state, Thünen claims that the mere possibility * of laborers laying out farms for themselves will compel the undertakers to pay laborers wages that will be equal to what the latter could earn by laying out farms and cultivating them on their own responsibility.

He argues (pp. 146, 147), if the undertakers should attempt to lower wages, laborers would emigrate to the margin, and begin cultivation on their own responsibility. Since, however, the number of laborers is constant, this act on their part would cause scarcity of labor in the interior of the state, which would result in a loss to the

* "Die blosse Möglichkeit für die Arbeiter, sich in der Wildniss anzusiedeln ohne dass dies That wird," etc. *Der isolirte Staat*, Part II., p. 147.

undertakers. If, therefore, the undertakers desire to keep their laborers, they must pay them such wages as would make emigration to the margin of the state unprofitable.

Falck might claim that Thünen's supposition of a party of laborers combining to lay out a farm is an illustration of the manner in which the laborers would proceed to enforce higher wages when undertakers had reduced them below the natural limit. But this claim could not be sustained; for Thünen distinctly tells us that his investigations rest upon the supposition that the isolated state is in a static condition (*im beharrenden Zustand*, p. 146). By static condition he does not mean that the laborers are at war with their employers, trying to obtain natural wages. He means that they already receive natural wages. This follows from what he himself says concerning the static condition: "Im isolirten Staat haben wir . . . stets den endlichen Erfolg, also das erreichte Ziel, vor Augen gehabt. Mit dem erreichten Ziel tritt Ruhe und damit der beharrende Zustand ein; und hier erblicken wir Gesetzmässigkeit, während in der Uebergangsperiode Manches uns als ein unentwirrbares Chaos erscheint" (p. 35). He believes that natural wages already exist in the isolated state; and, as a means of discovering the mathematical expression for such wages, he supposes that a number of laborers, to whom it is a matter of indifference whether they labor for wages or cultivate a marginal farm on their own account, combine to lay out a farm.

We can now easily see the fallacy in Falck's objection. Falck rests his whole proof of the inaccuracy of Thünen's formula on his claim that the y of the denominator of the expression $\frac{n[p-(a+y)]}{\frac{nq(a+y)}{y}}$ has a different value from the y of the numerator. The sole reason that he offers to substantiate his claim is that the y of the denominator represents

the surplus that the laborer receives before the farm is begun, and the y of the numerator represents the surplus that he receives after the farm is completed. But this is no reason whatever why the y's are not equal. Because y represents two quantities, it by no means follows that those quantities are unequal. If the analysis that I have given of Thünen's method of procedure is correct, natural wages are assumed to exist in the isolated state both before and after the completion of the marginal farm; and consequently the y's in the above expression are equal.

2. Roscher * claims that even in the isolated state, Thünen's formula $\sqrt{ap}$ does not represent natural wages; for, he says, if labor and capital are combined in different proportions in different industries, the laborers will not be justly rewarded if all receive wages $= \sqrt{ap}$. For example, if an artist, using cheap fuel, makes valuable vases out of cheap clay, it is not just or natural that he should receive wages equal to or less than the wages of an ordinary laborer. But Professor Roscher claims that the formula $\sqrt{ap}$ would bring about this relation, because a has the same value for the artist and the laborer, and p varies with the amount of capital used. Hence, when the laborer is employed in an industry where much capital is used, "product of labor," p, will be very great; and, if his wages $= \sqrt{ap}$, he may receive more than the artist who uses only a small amount of capital.

Komorzynski † holds that Roscher is right in saying that $\sqrt{ap}$ does not represent natural wages, where labor and capital combine in different proportions in production; but he shows that Roscher's illustration is defective, since he compares laborers of different classes, an artist and an ordinary laborer, whereas Thünen's investigations are concerned only with the ordinary laborer.

* Roscher, *Geschichte der Nationalökonomik in Deutschland*, p. 896.

† Komorzynski, "Thünen's naturgemässer Arbeitslohn," *Zeitschrift für Volkswirthschaft, Socialpolitik, und Verwaltung*, Dritter Band, 1 Heft, p. 53.

Now let us examine the argument offered by Roscher and approved by Komorzynski, that, where capital and labor combine in different proportions in production, $\sqrt{ap}$ does not represent natural wages even in the isolated state. In order to present the matter clearly, I shall use an illustration found in Thünen's own work,* where capital and labor combine in different proportions in production. In § 13 he announces the law that the price of commodities tends to conform to their cost of production, and attempts to illustrate the law by a comparison of the prices of mining and agricultural products. In the early part of his work he assumed that the mines of the isolated state lay in the neighborhood of the city; but, in order that he may illustrate his law by a comparison of the prices of silver and grain, he supposes, for the time being, that the silver mines are scattered about the state, that the last mine which is worked lies at the margin of the state, and that, further in the wilderness, mines of equal fertility to the marginal mine are found, but that they are not worked, because the product would not pay for the cost of production. This follows from the fact that the product of the marginal mine just covers the cost of production.

Now, it has already been observed that the product of the marginal farm just covers the cost of production. Then, since perfect competition pervades the isolated state, and laborers may work either at farming or mining, it follows that the wages of the farm laborer and the wages of the miner must have equal values. Hence, if we can find the wages of the former in terms of grain and the wages of the latter in terms of silver, we shall be able to find the exchange values of grain and silver at the margin of the isolated state.

Thünen's formula for wages is $a + y = \frac{p}{1+q^2}$. He supposes that the rate of interest — which, of course, is the same for owners of mines and owners of farms — is five

* Part II., pp. 131, 132.

per cent. In the above formula, and, indeed, everywhere else in Thünen's work, p represents "product of labor" *in kind*. When the laborers are employed in silver mining, p represents a certain amount of silver. When they are employed in agriculture, it represents a certain amount of grain. Thünen supposes that in the case of the marginal silver mine p equals $7\frac{1}{2}$ pounds of silver, and in the case of the marginal farm p equals 240 scheffels of rye. He then says, "Since different industries require different amounts of capital, q will represent different quantities." * He supposes that in mining $q = 20$, and in agriculture $q = 12$. By making these substitutions in the formula, we find that the wages of the miner $(a + y) = \frac{7\frac{1}{2}}{1 + 20 \times \frac{1}{10}} = 3\frac{3}{4}$ pounds of silver; and the wages, of the farm laborer $(a + y) = \frac{240}{1 + 12 \times \frac{1}{10}} = 150$ scheffels of rye. $3\frac{3}{4}$ pounds of silver, therefore, has the same value as 150 scheffels of rye; and $7\frac{1}{2}$ pounds of silver, the "product of labor," p, in silver mining, has the same value as 300 scheffels of rye.

Now, Roscher and Komorzynski would say $\sqrt{ap}$ does not represent natural or just wages, because the miner would receive as wages $\sqrt{ap} = \sqrt{a \times 300}$; while the farm laborer would receive $\sqrt{ap} = \sqrt{a \times 240}$. Whatever the value of a may be, it is the same for both; and consequently the miner would receive more than the farm laborer. Upon the face of it, this argument looks sound; but yet we should scarcely expect Thünen to make this blunder after telling us that throughout the isolated state all laborers receive the same wages, and that in different industries the quantity q, the amount of capital used, is different. As a matter of fact, I think it may be proved that the error lies with Roscher and Komorzynski. They attach

* Part II., p. 131. Falck attempts to defend Thünen against the criticism of Roscher, and says: "Der Herr Verfasser [Roscher] scheint hier vergessen zu haben, dass die Arbeiter des isolirten Staats Alle mit dem gleichen Capital ausgerüstet sind und dass daher ein verschiedenes Quotverhältniss geradezu undenkbar ist" (p. 55). The quotation above from Thünen, together with his illustration of different amounts of capital used in silver mining and in agriculture, show the absurd position that Falck has taken.

an entirely wrong meaning to p when p occurs in the formula $\sqrt{ap}$. In the formula $\sqrt{ap}$, p means "product of labor" in agriculture at the margin of the isolated state, and in the formula $\sqrt{ap}$ it never means anything else.

In the beginning of his work Thünen gives a general definition of p as the "product of labor" of one man; that is, the product to be shared between the laborer and the owner of the capital which he uses. He proceeds with his work, and bases his investigations at times upon actual conditions, and at times upon the assumed conditions of the isolated state. In his investigations based upon actual conditions he develops the formula $z = \frac{p-(a+y)}{q(a+y)}$; but, as his object is to find the expression for the natural wages of the isolated state, he tells us that in its present form the expression $z = \frac{p-(a+y)}{q(a+y)}$ is of no use to him. But why? Because p does not represent a constant quantity, "but rises and falls with q. y and z, in turn, depend upon p. Hence p, y, and z are functions of q." * He then definitely and distinctly states the problem before him. "The problem is then," he says, "to find the value of p, y, and z for a given value of q." †

After announcing his problem, he immediately leaves his investigations based upon actual conditions, and goes to the isolated state. He then shows that, if the laborers are to be deterred from laying out marginal farms, this equation must exist $(a+y)+q(a+y)z=p$, where p equals the "product of labor" in agriculture on the marginal lands. "Here," he says, "a, p, and q are determinate, y and z indeterminate" (p. 141). With these quantities assumed as known, he proceeds with his investigations, and ends by declaring that natural wages $=\sqrt{ap}$. But what does p mean here? Evidently, it has but one meaning, the "product of labor" in agriculture at the margin of the isolated state.‡

* Part II., p. 139. † *Ibid.*

‡ Misconception with regard to the meaning of p as that quantity occurs in the formula $\sqrt{ap}$ has been a source of numerous errors, and it is important that

3. Komorzynski takes a peculiar position in his criticism of Thünen. Thünen tells us he considers his isolating method the most valuable part of his work;* but Komorzynski insists that the isolated state, with all its appurtenances, is an unnecessary part of Thünen's work, and serves merely to obscure his investigations and confuse his critics. Thünen believes that the formula for natural wages can be found only in one way; namely, by means of the conditions placed upon the isolated state.† But Komorzynski claims that Thünen unwittingly develops the formula in two ways: that the second method of obtaining the formula has nothing to do with the isolated state, but is based upon actual conditions; and, when the two methods are divested of all unnecessary suppositions, the

the point made above should be understood. Thünen's purpose is merely to investigate, under the favorable conditions of the isolated state, the influence of free land upon wages. His position is that, at the margin of cultivation in the isolated state, the determination of the rate of wages and the rate of interest will be in accord with the best interests of the laborer, and that the rate of wages and the rate of interest at the margin determine the rates throughout the st . If Thünen attempted to show anything, it was that wages at the margin equal $\sqrt{ap}$, where p equals "product of labor" in agriculture; and his claim is that the same wages will exist throughout the isolated state. "Wir behaupten, dass der an der Grenze des isolirten Staats sich bildende Arbeitslohn und Zinsfuss normirend für den ganzen Staat ist" (p. 142).

Thünen's assumption that the mines of the isolated state are situated near the city (Part I., p. 1) confirms the idea that it was his purpose to investigate under favorable conditions the influence of free land upon wages; for, if the mines had been so placed that the one whose product just covered its cost of production was situated at the margin of the state, and that a number of equally fertile mines were left untouched in the wilderness, then, instead of the laborers combining to lay out a farm on the margin, they would unite to work a mine. We might then make suppositions concerning the latter combination similar to those that Thünen made concerning the former combination; and, if we should use capital letters where Thünen used small ones, we should find, by following Thünen's method, that the wages of each miner would be $\sqrt{AP}$. But $A = a$, and P is greater in value than p, because more capital is used in the production of P than is used in the production of p. Hence $\sqrt{AP}$ is greater than $\sqrt{ap}$; and, consequently, it would be more profitable for the laborers to engage in mining than in agriculture. Thünen saw what the difficulty would be if he supposed the mines to be placed in this way; and for this reason he was careful, in making the illustration I have given in the text, to state that his supposition concerning the position of the mines was only temporary.

*Part I., p. xix. †Part II., p. 26.

ascertainment of the formula is found to rest upon two conditions which are common to the two methods.

The second method of obtaining the formula $\sqrt{ap}$ is, according to Komorzynski, as follows: In the part of his work based upon actual conditions Thünen develops the formula $z = \frac{p-(a+y)}{q(a+y)}$, and states that it expresses the rate of interest. In another part of his work he states that it is to the advantage of the laborer to have wages and interest bear such relation to each other that the laborer will receive the maximum income from his surplus when that surplus is placed at interest. Now, Komorzynski argues, since the surplus is y, and the rate of interest $z = \frac{p-(a+y)}{q(a+y)}$, the interests of the laborer will be subserved when yz, which is equal to $\frac{y\,[p-(a+y)]}{q(a+y)}$, obtains a maximum value. This takes place when $(a+y) = \sqrt{ap}$. He therefore concludes that Thünen's suppositions concerning the isolated state are all unnecessary, and all that is needed to prove that $\sqrt{ap}$ represents the best rate of wages for the laborer is to prove: —

A. That $z = \frac{p-(a+y)}{q(a+y)}$ expresses a general formula for interest.

B. That it is to the advantage of the laborer to have wages and interest bear such relation to each other that the laborer will receive a maximum income from his surplus when that surplus is placed at interest.

Why Thünen did not proceed in the manner indicated I shall consider later on. At present we shall consider Komorzynski's attempt to prove an error in the development of the formula $\sqrt{ap}$ on the ground that the conditions A and B are unsustainable.

A. He claims that the subtle error which vitiates the formula for natural wages is that $z = \frac{p-(a+y)}{q(a+y)}$ is not a general formula for the rate of interest. To fulfil the conditions of a general formula for the rate of interest, it must express the same rate of interest for all industries.

But Komorzynski says the above formula is not capable of doing this; for "wages $(a+y)$ and interest z are by means of Thünen's formula $z=\frac{p-(a+y)}{q(a+y)}$ brought into a relation which, in turn, varies with the changing quantities p and q. The quantity p, the surplus value of the product over the value of the capital consumed in production, and likewise the quantity q, . . . are different in different forms of production. From this it follows that the relation which, according to the formula, exists between the rate of interest z and the rate of wages $(a+y)$, will be different in different forms of production." * In other words, since the quantities p and q are different in different forms of production, he infers that the relation of $(a+y)$ and z expressed by $z=\frac{p-(a+y)}{q(a+y)}$ will be different in different forms of production; and therefore, since the formula does not express the same rate of interest for all industries, it is not a general formula for the rate of interest.

The error in the argument can best be exposed by means of the example that Komorzynski gives to illustrate his argument. The illustration is intended to show why the formula does not represent the general rate of interest. He says: "If the rate of interest is 5 per cent. and the rate of wages 400 florins, then, in three different forms of production, these equations may exist:—

I. $\frac{5}{100}=\frac{2{,}500-400}{105\times 400}$, where $p=2{,}500$ and $q=105$;
II. $\frac{5}{100}=\frac{1{,}200-400}{40\times 400}$, where $p=1{,}200$ and $q=40$;
III. $\frac{5}{100}=\frac{460-400}{3\times 400}$, where $p=460$ and $q=3$;

But, if $(a+y)$ should rise from 400 to 450, then the following unequal rates of interest would result:—

I. $\frac{4.33}{100}=\frac{2{,}500-450}{105\times 450}$; II. $\frac{4.16}{100}=\frac{1{,}200-450}{40\times 450}$; III. $\frac{.741}{100}=\frac{460-450}{3\times 450}$." †

* Komorzynski, p. 58.

† *Ibid.*, p. 59, note. There is a slight error in the original which I have corrected in the quotation given above. Where $\frac{.741}{100}$ occurs above, $\frac{7.41}{100}$ is found in the original.

This example, he claims, illustrates that the formula is not a general formula for the rate of interest, or, better, a formula for the general rate of interest, but that it represents the relation between wages and interest in specific industries.

The fallacy in the argument may be readily shown. Komorzynski has overlooked Thünen's definition of p. In his illustration Komorzynski makes p represent, in each of the three cases, a definite number of florins. This is evident from the fact that in each case he subtracts wages, expressed in terms or florins, from p. Furthermore, when he supposes wages to rise from 400 to 450 florins, he assumes that in each of the three cases p retains its value in terms of florins. In his illustration and throughout his whole article * he assumes that p represents a definite *value*. But Thünen distinctly defines p as "product of labor"; that is, "product of labor" in kind (pp. 80, 167). When laborers are employed in silver mining, p is expressed in terms of silver (p. 131); and, when they are employed in agriculture, p is expressed in terms of grain (p. 131). If, then, p means "product of labor" in kind, Komorzynski cannot assume that the value of p, or the price of p, expressed in florins, remains constant when the rate of wages changes. This error renders his objections useless; for if, after the rise of wages, the demands of the community require the continuance of production in groups I., II., III., the formula $z = \frac{p-(a+y)}{q(a+y)}$ (provided there is no other objection to the formula than that which Komorzynski offers) may still represent equal rates of interest for the three groups if p, remaining constant in quantity as "product of labor" in kind, may change its value or change its price in terms of florins.

B. Komorzynski also attempts to prove defective Thünen's supposition that it is to the advantage of the laborer

* For example, p. 58, "Die Grösse p, der Wertüberschuss des Productes," etc.; p. 55, "Hier bedeutet p den Tauschwert (erlangbaren Verkaufspreis) des Productes," etc.

to have wages and interest bear such a relation to each other that the laborer will receive a maximum income from his surplus when that surplus is placed at interest.* In brief, he claims that it is not to the interest of the laborer that yz should attain a maximum value.

His objection may be thus stated: The interests of laborers as to the relation of wages and interest vary according as they have saved during many or during few years. If they have saved during many years, they desire to have wages low and interest high. If, on the other hand, they are just beginning to save, they desire a higher rate of wages and a lower rate of interest. Hence there is no definite relation of wages and interest that, under all circumstances, is the best relation for the laborers. Concerning Thünen's supposition that it is to the advantage of the laborer to have yz attain a maximum value, Komorzynski says that it is based on the arbitrary assumption that the laborers save only during one year, and that all laborers have only an amount of capital equal to y.

This objection has much in its favor; but, before considering it, we must put Thünen in the right light. In introducing Komorzynski's criticism, it was stated that his position is peculiar, since he holds that, while Thünen believed he could obtain his formula for natural wages only in one way,— by means of the conditions of the isolated state,— he unwittingly develops it in two ways; that, when the two methods are disembarrassed of all superfluous suppositions, the ascertainment of the formula is found to rest upon two conditions, which are common to the two methods; and that the ascertainment of the formula by the second method is based, not upon the hypothetical conditions of the isolated state, but upon actual conditions. By the logic of his position, therefore,

* This question is also discussed by Knapp, G. F., *Zur Prüfung der Untersuchungen Thünen's über Lohn und Zinsfuss im isolirten Staate*, pp. 18–26; Roscher, *Geschichte*, etc., p. 896; Schmidt, C., *Der natürliche Arbeitslohn*, pp. 34–37.

he is forced to charge Thünen with holding that it is to the advantage of the laborer, under actual conditions, to have wages and interest bear such relation to each other that he will receive the maximum income from his surplus when that surplus is placed at interest. This charge cannot be proved. Thünen's hypothesis that there is a definite relation of wages and interest which is most desirable for the laborer is based upon the supposition that there is a direct interdependence between wages and interest. But he cannot be charged with claiming a direct interdependence between wages and interest under actual conditions,* for nowhere in his investigations based upon actual conditions does he make such a supposition. So far, however, as concerns the isolated state,—a state in a static condition, with constant capital, with constant population having constant wants and constant methods of production,—his claim of an interdependence of wages and interest cannot be denied.

Now, when the above objection is considered as directed towards Thünen's method of developing the formula on the basis of the isolated state, it has the merit, not of proving his investigations false, but of showing them to be painfully contracted and incomplete. In a state where there is a direct interdependence of wages and interest, it is true that, when laborers possess different amounts of capital, those who possess much will desire a different relation of wages and interest from those who possess little. It is also true that, when laborers have saved during many years, they desire a different relation of wages and interest from what they desired when they were just beginning to save. But, after we have admitted

*Komorzynski's error grows out of his misunderstanding of the formula $z=\frac{p-(a+y)}{q(a+y}$, as that formula occurs in § 13. *If* Thünen claimed that the formula represents a general formula for interest under actual circumstances, and *if* he intended p to represent a constant price, as Komorzynski understands it, then we might charge him with holding that there is a direct interdependence of wages and interest under actual circumstances.

all this, we cannot deny that the laborers who are just beginning to save will be interested in having the relation of wages and interest such that they will obtain a maximum income from their surplus when that surplus is placed at interest. If, then, y equals the surplus, and z the rate of interest, we cannot deny that, when laborers begin to save, it will be to their advantage to have yz obtain a maximum value. Komorzynski's argument does not prove an error in Thünen's work: it merely shows its incompleteness.

4. I shall now attempt to point out a fallacy in Thünen's reasoning that vitiates his formula; and, in order to expose this fallacy, I must briefly review the chief points in § 13, that repeatedly misinterpreted section of Thünen's work. As I have shown in the early part of this article, Thünen's prime object in § 13 is to find means by which he can reduce to terms of labor the co-operation of capital in production. He proceeds to do this by saying, if an amount of capital Q is divided by the year's wages of a laborer $(a+y)$, we shall find "how large the capital is, expressed in years' labor of a laboring family" ("Wie gross das Kapital in Jahresarbeiten einer Arbeiterfamilie ausgedrückt ist," p. 124). Although we see what Thünen means to say, yet his words do not express his meaning. By dividing capital by wages, he does not obtain an expression for capital in terms of years' labor of a laboring family, but in terms of wages. Further on in the same section (p. 128) he repeats the same idea by saying, in effect, that capital may be reduced to terms of labor by dividing the amount of capital by wages. This inaccuracy in the use of words continues throughout the chapter.

In continuing his work, he supposes that $\frac{Q}{a+y} = nq$, or $Q = nq\,(a+y)$. If the capital $nq\,(a+y)$ is used in a productive process where n laborers are employed, then, assuming that the "product of labor" of each man equals p, and the wages of each equal $(a+y)$, Thünen holds

that the rate of interest is expressed by the formula $z = \frac{n[p-(a+y)]}{nq(a+y)} = \frac{p-(a+y)}{q(a+y)}$. By a manipulation of this formula he claims to prove that "z is the factor by means of which the relation of the efficiency of capital to that of human labor is expressed"; and hence he concludes, "We are herewith placed into position to reduce to terms of labor the co-operation of capital in the production of a commodity." Here he sums up in two sentences the result of his investigations in § 13. Notice, however, that above he spoke of reducing *capital* to terms of labor, while here he speaks of reducing the *co-operation of capital* to terms of labor,— two entirely different things, which we must keep distinctly separated. In a moment we shall find how Falck has fallen into error by confusing these two processes.

Now let us see what use Thünen makes of these results. To find the expression for natural wages, he resorts to the case of a number of laborers combining to lay out a marginal farm. One of the quantities that he uses to obtain his formula is nq, and the manner in which he obtains that quantity he states in these words: Suppose "the laying out of the farm required the year's labor of nq men. . . . Unquestionably, in order to provide a new farm, is needed not only labor, but also the use of capital; (but) according to § 13, we can reduce the co-operation of capital to terms of labor, and thus express the costs of laying out the farm entirely in terms of labor." *

What does Thünen mean by saying, according to § 13, the co-operation of capital may be reduced to terms of labor? Knapp understands him to signify that the co-operation of capital can be reduced to terms of labor by means of the rate of interest, and he states that such a reduction is impossible. This interpretation of Thünen's meaning I should urge as correct, and should base the claim (1) upon the general meaning of § 13, which is

* Part II., p. 152.

expressed in these sentences: "z is the factor by means of which the relation of the efficiency of capital to that of human labor is expressed," and "We are herewith placed into position to reduce to terms of labor the co-operation of capital in the production of a commodity"; (2) upon Thünen's use of words. In the paragraph under discussion he says, "According to § 13, we can reduce the co-operation of capital [*die Mitwirkung des Kapitals*] to terms of labor"; and in the latter of the two sentences just quoted he uses the identical expression, the co-operation of capital (*die Mitwirkung des Kapitals*).

Falck, however, takes exception to Knapp's interpretation, and states his objection by saying that in the first place, by dividing the value of capital by the value of a year's wages, the reduction of which Thünen speaks is possible; and in the second place, according to Thünen, the reduction is not effected by means of the rate of interest. Curiously enough, he informs the reader that, by referring to § 13 of Thünen's work, he may convince himself of the validity of his objection to Knapp's criticism. The truth of the matter is that Falck not only misinterprets both Thünen and Knapp, but he also misquotes Knapp. That he misinterprets those authors is evident from the fact that they speak of reducing the co-operation of capital to terms of labor, and Falck speaks of reducing capital to terms of labor. That he misquotes Knapp can be readily seen by comparing page 16 of Knapp with page 23 of Falck.*

If the interpretation that I have given of § 13 is correct,

*Knapp, p. 16: "Thünen bemerkt . . . das ein Grenzgut nicht nur durch Verwendung von Löhnen hergestellt werden kann; er glaubt aber . . . man brauche bloss 'die Mitwirkung des Capitals auf Arbeit zu reduciren,' so erreiche man das Gewünschte; diese Reduction, selbst wenn sie möglich wäre, geschieht nach Thünen nur durch den Zinsfuss, und da der noch zu finden ist, so bleibt also die Schwierigkeit ungelöst."

Falck, p. 23: "Schliesslich sagt Knapp, . . . 'Diese Reduktion (des Capitals auf Arbeit), selbst wenn sie möglich wäre,'" etc.

Knapp is speaking of the reduction of the co-operation of capital, and Falck quotes him as speaking of the reduction of capital.

it is easy to expose a fallacy in Thünen's reasoning that vitiates the formula $\sqrt{ap}$. Thünen's purpose in his whole work is to find mathematical expressions for the natural rate of interest and the natural rate of wages. The method by which he does this is first to find a formula expressing the interdependence of wages and interest in the isolated state. This formula $z = \frac{p-(a+y)}{q(a+y)}$ we shall call formula A. In this formula all the quantities are known except y and z. In order to find the values of y and z, he next attempts to find an independent expression for y, or what is the same thing, since a is known, an independent expression for $(a+y)$; and by substituting for $(a+y)$ in formula A obtain the value of z. The formula that enables him to find the independent expression for $(a+y)$ is $\frac{n[p-(a+y)]}{nq(a+y)}$. In this formula, which we shall call formula B, all the quantities are assumed as known excepting y. But how did Thünen obtain the quantity nq? He says: Suppose "the laying out of the farm required the year's labor of nq men. . . . Unquestionably, in order to provide a new farm, is needed not only labor, but also the use of capital; (but) according to § 13, we can reduce the co-operation of capital to terms of labor, and thus express the costs of laying out the farm entirely in terms of labor." When we refer to § 13 to see how the reduction is to be performed, we find that it is done by means of the rate of interest. The fallacy in the argument is evident. Thünen's whole procedure is a mere begging of the question. His problem is to find the values of y and z in formula A; and, to solve the problem, he undertakes to find an independent expression for $(a+y)$ by means of formula B, and by substituting for $(a+y)$ in formula A obtain the value of z. But, in order to get the quantity nq in formula B, he assumes that z is known. If, however, z is known, then, according to formula A, y is known. Thünen undertakes to find the value of the unknown quantities y and z; and, in attempting to solve the problem,

he uses the very quantities that he wants to find as known quantities.

While this error renders useless the formula $\sqrt{ap}$, yet it enables us to see why Thünen did not proceed to obtain the formula in the manner indicated by Komorzynski, and shows us the continuity in his work. In the part of his work based upon actual conditions (§ 13) he obtains the formula $z = \frac{n\,[p-(a+y)]}{nq\,(a+y)} = \frac{p-(a+y)}{q\,(a+y)}$; and in another part he states that it is to the advantage of the laborer to have the relation of wages and interest such that he can obtain the maximum income from his surplus when that surplus is placed at interest,— that is to say, it is to the advantage of the laborer to have yz obtain a maximum value. Now, Komorzynski holds that in these few facts we have the data with which to obtain the formula for natural wages, and that Thünen need not have carried his work farther; for, he says, if it is to the advantage of the laborer to have yz obtain a maximum value, then, since $z = \frac{p-(a+y)}{q(a+y)}$, his interests will be subserved when $\frac{y\,[p-(a+y)]}{q(a+y)}$ obtains a maximum value, which is the case when $(a+y) = \sqrt{ap}$. But Komorzynski assumes that the value of q in the above expression is known; and, in making this assumption, he has fallen into error. In § 13 the denominator of the expression for interest is obtained by dividing a definite amount of capital, Q, by the rate of wages. $\frac{Q}{a+y} = nq$ or $Q = nq\,(a+y)$. Hence nq is unknown as long as $(a+y)$ is unknown; and, when nq is known, $(a+y)$ is known, because their product is the definite quantity Q. Since, then, the value of q depends upon the value of $(a+y)$, it is an error to attempt to find the value of the unknown quantity $(a+y)$ in the above expression by assuming that q is known.

Thünen's method of obtaining the formula leads us to believe that he foresaw this difficulty. His sole object in trying to reduce the co-operation of capital in production to terms of labor was to enable him to proceed with his

work by considering nq a known quantity. When he attempted to find the expression for natural wages by assuming that a number of laborers combined to lay out a marginal farm, he did not begin by assuming that the value of the farm equalled Q, and by dividing that quantity by the rate of wages obtain nq; but he began by supposing that nq equalled the number of men required to lay out the farm. Knapp and Komorzynski * notice that he changed his method of obtaining nq, and, without seeing his purpose, charge him with inconsistency. By following his work, however, we find that he had a definite purpose in view; for, assuming that nq is known, he obtained an expression that is identical in form with the above expression from which Komorzynski obtains the formula $\sqrt{ap}$, but differs from it, in that nq, according to Thünen, is a known quantity.

Thünen's theory is valuable,† because it marks a decided reaction against the teachings of the classical economists, and yet at the same time avoids the extravagant doctrines of the socialists. His specific contribution to the theory of natural wages does not consist in his mathematical formulas, nor, indeed, in any positive conclusions that he obtains, but rather in his designation of the factors that must be considered in any scientific theory of natural or just wages. What these factors are can best be seen by contrasting Thünen's theory with that of the classical economists.

1. While the classical economists treated labor throughout as a mere commodity, Thünen regards the laborer as a *man*, and considers his wages as the means of satisfying

* Knapp, pp. 15, 25. Komorzynski, pp. 55, 56.

† It must be remembered that the first edition of *Der naturgemässe Arbeitslohn* appeared in 1850. For valuable suggestions concerning Thünen's contribution to Natural Wages, compare Schumacher's *Ueber J. H. v. Thünen's Gesetz vom naturgemässen Arbeitslohn*, pp. 18, 19; Mithoff (in Schönberg, *Handbuch*, Band 1), p. 640; Schmidt, pp. 2, 16.

his wants. The work that he undertakes is to find the wages that are agreeable to the nature (*naturgemäss*) and to the destiny of man.

2. While the classical economists regarded solely the operation of natural law, Thünen considers the equity in the case. He believes that natural wages exist in the isolated state when these two conditions are realized, (*a*) when the laborer receives the same income from his surplus when that surplus is placed at interest as the capital-producer receives from his surplus when that surplus is embodied in a marginal farm; (*b*) when the laborer receives the maximum income from his surplus.* Here Thünen makes a crude attempt to find an equitable basis for the division of the product of labor between the laborers and the owners of capital invested in concrete forms.

3. While the classical economists considered only the requirements of the laborer as limited by his surroundings, and disregarded the product of labor, Thünen holds that there can be no scientific theory of wages that does not make wages depend upon product. The fundamental idea in the formula $\sqrt{ap}$ is that wages must vary with the product.

A scientific theory of natural wages must regard the laborer as a man, consider the rights of the laborer and of the capitalist, and make the wages of the laborer depend upon his product.

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*These two characteristics of natural wages are definitely stated, p. 204.

RISK AS AN ECONOMIC FACTOR.

THE word risk has acquired no technical meaning in economics, but signifies here as elsewhere chance of damage or loss. The fortuitous element is the distinguishing characteristic of a risk. If there is any uncertainty whether or not the performance of a given act will produce a harmful result, the performance of that act is the assumption of a risk. It is obvious that risks may vary in the degree of danger which is present between absolute certainty of harm as one limit and almost absolute certainty of security as the other limit. If one were to jump from a precipice at a great height, he could not be said to take a risk. His destruction would be certain. On the other hand, it is doubtful whether there is any such thing as absolute certainty. Neither life nor possessions are ever removed from all possible peril. Even when it is certain that an unfavorable event will happen, a risk may exist, because the time of the occurrence is uncertain. Death is a certainty for all, but the time of death is among the greatest of uncertainties. Again, the fortuitous element may be one of degree. It may be certain that an injury will be wrought by a certain force or action, while it is uncertain how much injury will be done.

Mangoldt, who, so far as I know, is the only writer who has attempted to distinguish economic risks from other risks, says that a distinction must be made between mere irregularities (*Unregelmässigkeiten*) of results and economic risks.* The champagne-maker, for instance, must reckon that a greater or less number of bottles will break. Very true; but, if there is an uncertainty how many will break, there is a risk, and why it should be excluded from economic risks I cannot see. There is no occasion for

* *Die Lehre vom Unternehmergewinn*, von Dr. H. von Mangoldt, p. 82.

any distinction between risks which are economic and those which are not. Every risk to a human being comes within the scope of economics.

Risk is universal. Life and happiness are perpetually hazarded. The dangers of death of supporter, fire, hail, earthquake, failure of crops, diseases of persons and stock, accidents to persons and property, bankruptcies, panics, deterioration and unprofitable sale of property, are, to a certain extent, unavoidable. Be as careful as we may, the very air we breathe may be freighted with disease germs. We abide in a perpetual state of risk. To escape from one peril is only to encounter another. There is, then, a certain minimum amount of risks which a person must bear. There is a class of risks of which we cannot say that they are "assumed."

The owner of wealth must, if he is rational, invest it in some productive enterprise, unless, under the circumstances, he decides to consume it; and, wherever it is invested, there will be some risk that part of it will be lost by the dishonesty of others, the deterioration in value of the property in which it is embodied, or in a change of value of the standard of deferred payment. If he thinks to escape by hoarding it in the shape of specie, robbery is to be feared, to say nothing of the opportunities of gain which are given up. If he decides to consume the wealth at once, he runs the risk of coming to poverty.

We may, however, assume that, by investing his money in government bonds or some other extremely safe security, he reduces the risk to which his property is subjected to a minimum. For taking this minimum of risk, he can obtain no compensation. So of the risks to life and health. The safest possible productive activity is carried on under circumstances of some danger, but the risk is no greater in some kinds of employment than would be the risk of not engaging in productive activities

at all. A workman could obtain no reward for incurring these risks. Neither he nor the capitalist can get compensation, from the fact that he is subject to those risks which are necessary and inseparable conditions, not only of all production, but of all human life and property. Nor could this minimum of risk hinder a man from investing his capital or devoting his labor to production, for to desist from such action would only bring upon him a more undesirable result.

By this is not meant that the harmful events, of which there is even a minimum of danger, do not affect production, nor that accidents do not modify the actual distribution of the products of industry, but that the risk does not do this. Harmful events are to be carefully distinguished from risks. It is true that the elimination of even the minimum of risk would be a great gain to society, because risk could not be eliminated without eliminating the injuries. It is seen, on careful analysis, that it is the elimination of the events, not of the risks of the events, that would be beneficial. We may then assume a theoretical minimum of risk to which all property and all life are at a given time subject. These risks we will denominate ineffective risks, because they can have no effect on production or distribution.

Above this margin there are all degrees of risk both to wealth and persons which we may designate as effective risks. Of these risks it can be correctly said that they are "assumed," and in a perfectly rational society they will be assumed only when some reward is expected and in general given for their assumption. In discussing risks as affecting distribution, it is this kind of risks, and this kind only, which will demand our consideration. Among ineffective risks are those which society, as a whole, must assume. The passage of a tariff bill will affect in some degree every person in our country, by adding to or subtracting from the general prosperity. So far, its passage

imposes an ineffective risk; but, if it especially endanger particular kinds of business, it enters in as one of the effective risks to which those businesses are subject. Professor H. C. Adams * attributes the high profits made by manufacturers of certain lines of goods in the United States to the fact that the risk of tariff legislation prevents other capital from entering these lines of business.

All risks may be divided into static risks and dynamic risks. Static risks are those risks which would be found in a stationary state of society. Among them are those due to natural causes, such as damage by lightning, hail, earthquake, storms, disease, and many others. Risks arising from ignorance are a large class, which includes many fires, bankruptcies, sicknesses, accidents, early deaths, and failures in business from misdirected effort. Carelessness is closely akin to ignorance as a cause of damage. Lack of moral character gives rise to a class of risks known by insurance men as moral hazards. The most familiar example of this class of risks is the danger of incendiary fires. Dishonest failures, bad debts, etc. would fall in this class, as well as all forms of danger from the criminal classes. When these risks are spoken of as static, it is not meant that dynamic changes cannot modify them. Such is not the case. The invention of the electric light was a dynamic change which has modified the danger of damage by fire. Nevertheless, we may legitimately use the word "static," because, even in a stationary state of society, we should expect risks of the same essential kind. The amount of loss coming from static risks is incapable of calculation, but is certainly very great. The losses direct and indirect by fire alone are estimated by Mr. Edward Atkinson at $250,000,000 for the United States in 1893.

Other risks may be called dynamic, because they are risks of damage which may be directly due to dynamic changes. These are chiefly of two kinds, the first

* Lectures at Johns Hopkins University, 1894.

being changes in the wants of society. As civilization advances, human desires are subject to constant modification and to sudden changes in amount and direction. Changes of style which cannot be foreseen by producers are an example of changes in the wants of society. A stock of men's hats which is salable to-day will, perhaps, be utterly without a market next year. A dealer who has an over-stock is subject to heavy loss.

In the second place, changes in methods of production give rise to losses which may be subdivided into two classes. The first are the losses which fall upon those who are attempting to introduce new processes. "The uncertainties," says Professor Clark,* "that attend the introduction of a new process are dynamic, since they would have no existence if industry were to continue in a stationary state. There is the chance that the process may be mechanically defective. It may not create the desired commodity as the projector of the enterprise expects. If, on the other hand, the dynamic change consists in offering some new commodity for the comfort and pleasure of consumers, the public may fail to give the expected welcome."

The second are losses which fall upon producers in consequence of the introduction of improved processes by others. There is constant danger that an innovation or an improvement of some kind will destroy the value of property in which a great amount of capital has been invested. Losses of this kind differ from those of which Professor Clark speaks, in that, while causing a loss to individuals, they bring a social gain. The wealth directed to the unsuccessful venture might have been employed in lines of static activity; but, by being diverted, it is lost, not only to its owner, but to society as well. In the second case, though society is a gainer by the improvement, individuals are large losers. Losses of this kind

* *Quarterly Journal of Economics*, vol. vii. pp. 52, 53.

have been exceedingly common in recent years. A notable case was the destruction of capital incident to the opening of the Suez Canal. The ships, mainly sailing vessels, which went around the Cape of Good Hope and carried the products of India, were not adapted to the canal, and an amount of shipping estimated at two million tons was rendered practically valueless.* Several years ago it was discovered that worsted goods soon became glossy, and that by an improved method this defect could be remedied. The Bradford manufacturers of worsted were unwilling to incur the great expense of changing their method. The French quickly made the change, and secured most of the market. The English made the change too late to save their trade. In this country a large manufactory made the change at once at a cost of three quarters of a million dollars.† It is clear that the total amount of dynamic losses must be very great.

We now come to the discussion of the relation of risk to production. President Andrews says,‡ "Not alone anarchy, but the slightest real insecurity to life or property, will paralyze production." John Stuart Mill has dwelt at great length on security as a requisite of production. This is the equivalent of saying that insecurity or a condition where risks are numerous and great is unfavorable to production. Every risk diminishes by so much the prospective enjoyment of commodities to be produced. No man cares to labor for that from which he can get no benefit. This is a reason for the inefficiency of slave labor. So if there is a danger, especially a great danger, that the producer will sow where he cannot reap, he will refuse to sow at all. During the Middle Ages the great exactions of the feudal lords and of the Church were a most potent factor in discouraging industry. It

* D. A. Wells, *Recent Economic Changes*, p. 30.

† *Bankers' Magazine*, vol. xxxviii. p. 831.

‡ *Institutes of Economics*, p. 54.

would not be scientific to class all of these exactions as risks. Many of them were certainties, but we are justified in saying that a risk exists whenever there is a chance that the harmful event in question may not happen. If in ninety-nine cases out of a hundred the harmful event occurs, it will probably entirely stop production; and thus the result will be the same as if it occurred in every case, but, theoretically, we may say a risk exists.

Risk is a deterrent to production, not only as acting upon the production of consumption goods, but it is a hindrance to the saving of capital. Indeed, this is perhaps the more important phase of the matter. Capital in many forms is difficult of protection. A consumption good usually has to be protected for but a short time, while a capital good must be protected for a long period. A man when he capitalizes or saves his funds looks forward to keeping them intact as a fund of pure productive force for a longer or shorter period, at least until he shall use them for consumption. He will measure the good to be accomplished by this fund of capital against the good of its present use. It is obvious, if he thinks there is danger, through monetary changes, overthrow of governments, or other great catastrophes, that his capital will be destroyed, he will be deterred from his intended saving. The greater the catastrophe feared, and the nearer the probable time of its occurrence, the more it will weigh with him as a deterrent influence.

Is risk always a deterrent to production? The writer is inclined to maintain that it is. Certain facts would seem to militate against this view. The most dangerous employments have no lack of hands. Railroads have no trouble in manning their trains with brakemen. Sailors are found in adequate numbers at low wages. Men are not few who seem to seek danger and court risk. The explanation of this phenomenon is to be found, not in the attractiveness of the risk itself, but in the attractiveness

of some condition or apparent condition which goes with the risk. It is an open question whether risk is ever taken for its own sake. It must, however, be admitted that risks are taken in great numbers by the majority of men with very little hesitation.

Professor Clark * expresses his concurrence with Mangoldt in the opinion that the assumption of risks is to be considered productive, in a certain sense. "It yields," he says, "a net gain." This statement is not denied, but demands some further consideration. In what sense and with what limitations is it true? We have already seen that some risk is inseparable from human existence and activity. All production is accompanied by it. Risk-taking does not increase product in any such sense as labor and capital increase it. Indeed, we have seen that risk is a hindrance to production. Is there, then, any virtue in risk-taking? There is, and in this sense: that there is greater productivity where effective risks or risks which can be conceived of as avoidable are taken than there would be in a society where every man made it a point to subject himself to the minimum of risk. Risk-taking, then, has a kind of negative productivity. It is the *sine qua non* of any productivity above the minimum. It is desirable for society to have its members assume risks; and its members do assume risks for which, as we shall see, they must be paid. The credit system is considered by all competent economists as the means of immensely augmenting the productivity of society, but it also makes possible the immense losses and suffering which are incident to commercial crises.

It by no means follows that all enterprises involving risks are productive. The assumption of risks implies the occurrence of losses. Society cannot profit by the assumption of risks which entail an aggregate of losses above the

* "Insurance and Business Profit," *Quarterly Journal of Economics*, vol. vii. p. 40.

aggregate of gains. Whether the taking of a particular risk will prove productive or not is of course determined only by the issue. Disregarding its effect on particular members of society, and assuming that society, as a whole, desires the largest possible aggregate product, it is desirable, when the probability of gain exceeds the probability of loss, that the risk should be taken. In estimating this probability, it is necessary to take into account not only the chance of gain or loss, but the value of the thing risked and the value of the thing which may be gained. If (to state an extreme case) there is one chance in nine hundred and ninety-nine that the investment of one dollar will produce one thousand, the taking of an infinite series of such risks would be productive. This has been said on the assumption that, if the venture is successful, society will be benefited. If so, the conclusion is easy that such risk-taking is in general to be approved. But, even from a social point of view, it would be undesirable that one should risk so much of his resources that he would be reduced to pauperism, or have his industrial or other social efficiency greatly impaired in case of the unfavorable outcome of his venture, though the probability of success were much greater than the probability of failure. This will more clearly appear in what will be said on the way in which risks are estimated. There is, however, a class of speculative risks which confer no special benefit. The gambler on the race track is the taker of risks which, if successful, transfer property from some other person to him. Such risk-taking is not productive unless the excitement incident to the gaming may be called a utility to that part of society which engages in such amusements. There are other cases of risk-taking of which society gets no benefit. The speculative buying of land to secure the unearned increment is an example. A writer in the *Bankers' Magazine** takes the ground

*Vol. xliii. p. 259.

that certain great fortunes are justified because the men who have bought up mining and other lands had to take great risk in so doing; because, as he says, they had great "faith." This point, of course, has no weight unless it can be shown that society gets a benefit which could not otherwise have come to it. The point as made will hardly convince those economists who advocate the taking in some way by the public of the "unearned increment" of land.

President Andrews, correctly as the writer thinks, makes "risk, a hardship inseparable from the exercise of either labor or abstinence," one of the costs of production.* And this is in some sense true, whatever meaning be given to that much discussed term, "cost." Cairnes counts among the costs of production† "the liability of producers to certain evils over and above the usual and calculable sacrifices incident to their work, which we may call risks." "The sacrifices of risk," he continues, "fall on both classes of producers alike, though the nature of the risk differs as it affects one or the other. Affecting the capitalist, it is a risk to his property; affecting the laborer, it is a risk to his bodily and mental faculties of life; but in either case it is an element of cost, being a real sacrifice incurred by a producer, and demanding a corresponding compensation in the value of the product." If we take the term "cost of production" in the sense of money cost of production or expense of production, that use of the word which we find in common life and which appears to me as comprehensive as any use of the word, there can, it would appear, be no question that risk is a cost of production. Marshall says‡ that the money cost is made up of the sums of money which have been paid for "the exertions of all the different kinds of labor that are directly or indirectly involved in making

* *Institutes of Economics*, p. 76. † *Leading Principles*, p. 74.

‡ *Principles of Economics* (2d ed.), p. 399.

it, together with the abstinences or, rather, waitings required for saving the capital used in making it." All these efforts and sacrifices, he says, make the real cost of production. Unless risk is included, as it is by Cairnes,* in the conceptions "labor" and "abstinence" or "waiting," it should be separately mentioned as among the costs of production. Payment for risk, nearly all economists agree, enters into gross interest. Risk raises the retail prices of commodities where goods are sold on credit. Every consumer has to pay more for his goods on account of the risk of loss on the book accounts to which the dealer is subject. Mr. James G. Cannon, of New York, estimates† from his experience that on the average the book accounts of retail grocers are worth 40 per cent. of their face value. It is true that some loss on the book accounts is practically a certainty, and the whole difference between the retail prices which a dealer could afford to charge, if doing business on a cash basis, and what he must charge when doing a credit business cannot be attributed to risk; but the additional charge which he makes to cover possible loss, in distinction from that loss which may be regarded as certain, can be attributed to that cause.

Turning now to the narrowest conception of cost with which I am acquainted, let us see whether risk can be brought under the concept. Professor Patten says:‡ "If we estimate the cost to society subjectively, it is the sum of the pains which producers must endure while engaged in production. . . . The cost of wheat is increased when more laborers must be employed in its production or when the labor of producing wheat becomes more irksome." Again, he defines§ it as "disagreeable exer-

* *Leading Principles*, p. 80.

† "Mercantile Book Accounts," New York *Independent*, November 16, 1893.

‡ *Dynamic Economics*, p. 50.

§ *Annals of the American Academy of Political and Social Science*, vol. iii. p. 410.

tion." If "pains" and "disagreeable" experiences are the ingredients of cost, then the hardship of subjecting one's self to risks for the sake of production must be counted as an element of cost. The laborer in a highly dangerous employment is likely to be under a nervous strain on account of his hazardous position. So far as this is true, he is suffering a cost in the strictest sense of the term. The capitalist who has placed his wealth in jeopardy may, and I have no doubt often does, have similar "unpleasant experiences." Even in a socialistic state many risks would remain costs to society. The pains incident to risking capital in production would be practically abolished, but the pains which individual laborers would have to endure while and because of subjecting themselves to risks would still have to be undergone.

Risk would be a cost even in the exceedingly peculiar sense in which the Austrian school use the word. Cost, according to Böhm-Bawerk,* is nothing else than "the complex of those productive goods which have value,—the labor, concrete capital, uses of wealth, and so on which must be expended in the making of a product." Though not expressly mentioned, there is no reason why a list of "productive goods" which includes labor should not also include the assumption of risks.

Before entering upon the discussion of risk as affecting distribution, we will discuss the scope of insurance, and inquire what its economic definition is or ought to be. This is a subject on which there is great difference of opinion. Some writers, especially among the Germans, have attempted to give an economic definition of the word. Writers in English have, on the other hand, used the word without definition. We can glean from their use of it something of the significance that they attach

* *Positive Theory of Capital* (Smart's translation), Book III. chap. x. p. 183.

to it. The word has been used by one set of writers in a narrow sense, which restricts its meaning to what is known by the business world as insurance, and by the others in a much more comprehensive way.

Emanuel Herrmann * tries to reach the fundamental conception of insurance by an analysis of means of overcoming unfavorable circumstances (*ungünstige Umstände*) according to the degree of their perfection. These means he divides into three kinds: —

I. Avoiding (*Meidungen*); means for making the event insured against (*Versicherungs-Ereigniss*) entirely impossible or less likely. Lightning-rods are an instance.

II. Suppression (*Unterdrückungen*); preventing the increase of an injury, the growth of a partial loss to a total loss. Fire-extinguishers are an example.

III. Compensation, or insurance proper, which allows the injury to come in, but mitigates the results. Similar conceptions to that of Herrmann are held by Karl Knies, Schäffle, Reinhold Schlink, and Max Gebauer.† All these writers make insurance one of the means of resisting unfortunate circumstances, but disagree as to the exact limits of insurance proper.

Let us examine a few typical cases of the comprehensive use of the word. Edward About uses the following language: ‡ "The ideal insurance will be that which prevents fire from destroying, tempests from wrecking ships. . . . That insurance, or rather terrestrial providence, is material progress, the victory of man over the elements. . . . All progress in nourishment, hygiene, and medicine, has for its object the insurance of man and animals from premature death. . . . But complete suppression can never be reached. It will always be necessary to found repara-

* *Theorie der Versicherung vom wirthschaftlichen Standpuncte*, p. 89 *et seq.*

† *Vide* Von Boenigk, *Beiträge zum Versicherungswesen vom wirthschaftlichen Standpuncte*, where numerous definitions are quoted.

‡ *Les Questions d'Argent*, pp. 59, 62, 63.

tive (*réparatrice*) insurance by the side of preventive insurance." Von Boenigk * justly remarks that logically all means are included in this definition which are directed against dangers threatening human possessions, and that under such a conception come pledges and saving. I am not aware that Professor Clark anywhere defines insurance, but his use of the word † shows that he applies it in a general way to the assumption of a risk in the course of the productive process. He speaks of the capitalist as receiving pay for assuming risks which he considers as an insurance premium. The conception of About, which includes lightning-rods among the kinds of insurance (*assurances*), receives by implication the approval of Professor Marshall, who, in speaking of the manufacturer who does not patronize the insurance companies, uses the following language: ‡ "Having decided to run these risks himself, he is likely to spend a little more than his competitors in providing against their occurrence. . . . It [the extra expense] is really an insurance premium in another form. . . . Again, certain insurance companies in America take the risk against fires in factories at very much less than the ordinary rates on condition that certain prescribed precautions be taken, such as providing automatic sprinklers and making walls and floors solid. The expense incurred in these arrangements is really an insurance premium." It is common among writers to speak of gross interest as including compensation for risk; and this is often, if not generally, called insurance.

These quotations show that many of the best authorities use the term "insurance" in a very wide sense. Economists do not confine their use of the term to the business of insurance. What, then, is its true economic signifi-

* *Beiträge zum Versicherungswesen*, p. 14.

† *Vide* "Insurance and Business Profit," *Quarterly Journal of Economics*, vol. vii. p. 40.

‡ *Principles of Economics* (2d ed.), p. 447.

cance? The writer inclines to the use of the word in its widest sense. It has already passed in economics from its narrower meaning; and the question is, What are the bounds of its proper use? If we are to accept as proper the usage of such authorities as Clark, Marshall, and many others, we must give the word a very wide scope; and there is no stopping-place till we have included under this term all means by which risks are diminished, are shifted from one person to another, or are taken by one or more persons as a part of the process of production. Insurance consists, then, in all those arrangements by which the unfavorable results of the existence of risks are wholly or in part prevented.

The first form of insurance I will call *producers' insurance*. It consists in bearing a risk for the sake of production, and it comes under our definition, because the producer bears a risk which stands between society and the satisfaction of its wants. This leads us directly to the question what effect risk has on distribution. In other words, who are the insurers in the productive process? Are they capitalists or are they entrepreneurs? Or are they both? Are laborers risk-takers? Is the function of risk-taking to have a co-ordinate place in distribution, as suggested * by Professor T. N. Carver?

Mr. F. B. Hawley,† in a criticism of Boehm-Bawerk, has advocated the theory that the entrepreneur's function is that of the risk-taker, and that profit, his reward, is the pay for risk-taking, or "enterprise." The question whether or not the entrepreneur is a risk-taker depends on the conception of an entrepreneur. Mr. Hawley's idea is that he is a man in active business affairs who is responsible for the capital he is using, or is the owner of it himself. That the entrepreneur is a risk-taker cannot,

* In a foot-note on his article, "The Place of Abstinence in the Theory of Interest," *Quarterly Journal of Economics*, vol. viii. p. 58.

† *Quarterly Journal of Economics*, vol. vi. p. 280 *et seq.*

I think, be questioned if we take the view Mr. Hawley holds, and, indeed, the view generally held, of the nature of the entrepreneur. But is the entrepreneur the *only* risk-taker? To be consistent, this view must include among entrepreneurs all lenders of money who receive anything above the minimum of interest. It is universally agreed that gross interest contains a loading which is due to the risk encountered by the lender. If, then, Mr. Hawley is logical, the man who loans his funds to hazardous enterprises is an entrepreneur. This view has something to commend it, as it leaves the capitalist, as the receiver of net interest, the reward for the employment of capital when used in the safest possible channels. But this is not all. We must consider the question whether the laborer can be a risk-taker. Mr. Hawley* himself, in his controversy with Professor Clark, proves conclusively that other things than capital can be risked. Life and reputation, time and future wages, all can be risked. The man who performs the function designated as labor by economists undergoes risk as well as the possessor of capital. This is too familiar a fact to need proof. It was treated by Adam Smith,† where he said, in speaking of different employments, that "the wages of labor vary according to the probability or improbability of success in them." This being true, if Mr. Hawley is to be consistent, he must include among entrepreneurs every laborer who is able to exact from society any compensation for assuming a risk. Doubtless such a system might be worked out which would be perfectly logical and consistent with the facts. We might start with the proposition that there are three kinds of cost,— personal exertion, abstinence, or waiting, and risk-taking. No man could be found who suffered any one of these costs in its purity, but it would be a logical carrying out of the idea that

* *Quarterly Journal of Economics*, vol. vii. p. 470.

† *Wealth of Nations*, Book I. chap. x., Part 1.

distribution must go entirely by functions discharged. Though we might construct such a system as this, it is doubtful whether it would be of any value to our science. The problem of distribution with which economists are struggling is, in large part, the problem of what classification of the facts brings out recognized truths most clearly and in due perspective. It seems to me that the method which would make insurance a co-ordinate subject in distribution would have no special merit in this way.

We now turn to Professor Clark's criticism of Mr. Hawley.* The whole criticism consists in putting forward Clark's peculiar conception of the entrepreneur.† According to Professor Clark, the reward of risk-taking belongs to the capitalist. The entrepreneur is the co-ordinator of capital and labor, nothing more. His reward is pure profit. Professor Clark says,‡ "We have used the term entrepreneur in an unusually strict sense, to designate the man who co-ordinates capital and labor, without in his own proper capacity furnishing either of them. Yet our eyes are open to the fact that the living man who performs this function *has to do other things also*.§ It is only in the one limited capacity that we have called that of the entrepreneur, that the man is confined to co-ordinating the elements furnished by others. . . . In performing this one function, he contributes to industry nothing but relations. He connects labor and capital with each other in his own establishment. He connects this establishment with

* Vide *Quarterly Journal of Economics*, vol. vii. p. 40 *et seq.*

† It may be well to state here that I accept Clark's treatment of land which makes it one form of capital, and with him should not give rent a co-ordinate place in distribution. "Ground rent is not to be determined by the relation of land to all other agents, but it is to be found by determining (1) the relation of labor to all capital, (2) the relation of land to other forms of capital." (Lectures by Professor Clark at Johns Hopkins University, 1893.) This will explain the fact that I shall not again refer to rent in this paper. It would be easy, if necessary, to show that the land-owner is a risk-taker.

‡ *Quarterly Journal of Economics*, vol. vii. pp. 45, 46.

§ Italics are mine.

others, and makes it do its part in the general industrial system. He becomes the owner of the products of this industry, as they are turned out, and sells them in the market for what he can get. In acquiring this ownership, he must pay all the costs entailed in creating the product. And among the costs to be thus defrayed is the entire sum made over to the capitalist as an offset for risk." Professor Clark excludes from the function of the entrepreneur every activity which can possibly be classed as labor, and, moreover, the entrepreneur possesses "no dollar."* Accepting Professor Clark's conception of the entrepreneur, the result follows that he is not a risk-taker; for he has nothing to risk. It is admitted that no single example of the pure entrepreneur can be found anywhere. This fact seems to me a serious indictment of the conception.

We are not satisfied with the above conception of the entrepreneur. It seems that it would be better to understand the phrase "co-ordinator of capital and labor" (which is a very happy expression) in a wider sense. The entrepreneur is a co-ordinator in no passive way as merely furnishing a relation, but he is a person of activity. He *makes* the relations. He must first be a laborer himself. Then he must have a capital of his own, unless he can get the use of capital as a gift from some relative or friend. *Because* he is both a laborer and a capitalist, he is able to co-ordinate labor and capital. The typical entrepreneur is the most active of men. Watchfulness, care, responsibility, are his. His capital and his reputation are constantly at stake. The only check upon his risks is his own vigilance. Men of this description are a great fact in modern industry. Concrete examples of them are to be seen anywhere and everywhere. Why not, then, in our scheme of distribution follow out the great characteristics which are patent to all, and do our best to reconcile minor matters to this scheme?

* Lectures at Johns Hopkins University, 1892.

It is not the purpose of this paper to discuss distribution, but it is obviously necessary to outline as briefly as possible a distributive system before going further in the discussion of our subject. The essentials of production are two,— labor and capital. The man whose distinguishing function in the productive process is personal effort is a laborer, whether he carries a hod or is President of the United States. The man who possesses wealth which is used productively is a capitalist. If he co-ordinates his capital with his own labor or that of others, he is an entrepreneur. He is a special kind of laborer. All laborers are co-ordinators of capital and labor; but the entrepreneur is distinguished from other laborers by the fact that his own capital (or capital borrowed on his credit, which amounts to the same thing) is co-ordinated with labor, while the simple laborer brings nothing but his personal qualities to the productive process.

Interest is the reward for the use of capital; and its rate in any case is gauged by, or, at least, must be equal to, the subjective valuation of those disutilities essential to the production and use of the last increment of capital actually employed in production. This rate is equal to the marginal productivity of capital. This agrees, so far as the element of risk is concerned, with Professor Carver, when he says:* "Abstinence is not the only sacrifice involved in the lending or the employment of capital. At present there is always more or less risk involved. Marginal productivity must be sufficient to compensate for both risk and marginal abstinence, for both are combined in the sacrifice of the capitalist class. For the present, therefore, we make no distinction between the interest paid and the surplus arising from the employment of the last increment of capital."

In the same way wages is the reward paid for keep-

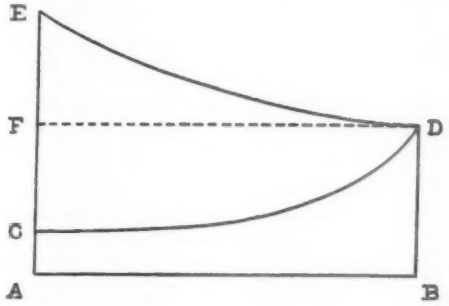
* "The Place of Abstinence in the Theory of Interest," *Quarterly Journal of Economics*, vol. viii. p. 55.

ing a man's personal exertions productively employed, and must be measured by the subjective valuation placed by the worker on the various disutilities involved in performance of the last increment of labor essential to the productive process. One of these disutilities is unquestionably in many cases the subjection to risks to life and health.

Professor Carver, in the article to which reference has been made, has shown that interest is equal to the reward for marginal abstinence, with risk added. The greater the amount which must be saved, *ceteris paribus*, the higher becomes the margin and the greater becomes the interest. The risk he considers a constant quantity, and so represents it in his diagram, because, he says,* "risk does not necessarily increase as saving advances." Now, it is true that it does not necessarily increase. Indeed, it may decrease. As men get more capital, they may be willing to risk a part at least of it for a less reward. One man may put a high subjective valuation on abstinence or waiting and a low valuation on risk, while another may consider abstinence of small importance and risk a great hardship. But just as it is true that interest must compensate for abstinence or waiting at the rate of the highest estimate placed upon it by any of those lenders whose capital is actually used, so it is true that it must compensate for a given amount of risk at the rate of the highest estimate placed upon the assumption of risk by any of those capitalists whose funds are employed subject to the given risk. For the sake of examining the compensation for risk-taking, let us suppose there is absolutely no charge for abstinence or waiting, so that the only compensation the capitalist requires is pay for risk-taking. If but a small amount of capital must be secured, it can be obtained from those who put a low estimate on risk, but, as more is required, enough compensation must be given to cover higher estimates of risk.

* *Quarterly Journal of Economics*, vol. viii. p. 57.

On the accompanying diagram let the increments of capital employed in all kinds of business where the risk is the same mathematically be measured along the line A B, and the increasing subjective aversion to assuming additional risks be represented by the distance between A B and the curve C D. If money were needed, only in moderate quantities, it could be obtained by offering



a small compensation for risk; but, as lenders are asked to risk more and more of their money, and money for those kinds of business is more and more borrowed from men whose subjective estimate of risk is high, the compensation must be increased. At the same time the productivity of successive increments of capital will decrease. This is represented by the distance of the line A B from the curve E D. If there be free competition in the loan market, all lenders will be able to demand the same compensation for risk-taking as those whose subjective valuation is the highest. The risks taken would constantly increase until it was found that it did not pay to take greater risks; that is, until the reward for risk-taking should equal the productivity of capital. Then total interest, which by our hypothesis is total reward for risk-taking, will be represented by the rectangle A B D F.

Such would be the condition if risk alone were paid for, and a similar condition would exist if abstinence or waiting were paid for by itself. But, as a matter of fact, interest is paid for waiting and risk taken together. Each lender makes a subjective estimate of the *total* disutility of loaning his funds. Interest is determined by the marginal sum of these disutilities. It is not the lender whose estimate of abstinence is highest nor whose estimate of risk is highest, but the lender whose estimate of the sum of these disutilities taken together is highest, who is the marginal lender, and determines the rate of interest.

If we reject altogether the theory which makes interest the reward for the sacrifice involved in abstinence or waiting, and with Boehm-Bawerk consider interest as the premium which present goods command over future ones of like kind and quantity, we can still consider risk as a factor in fixing the rate of interest, for it gives an additional reason for esteeming present goods more than future goods. Boehm-Bawerk himself gives the uncertainty of life as one of the causes for the higher estimation placed on present than on future goods.*

It is not necessary to dwell upon the subject of wages. It is sufficient to remark that, just as the marginal lender is he whose estimate of the sum of the disutilities of lending is highest, so the marginal laborer is the laborer whose estimate of the sum of the disutilities incident to labor is highest, and not necessarily the laborer whose estimate of the pain of labor nor whose estimate of the risk of labor is highest.

The question arises, What is profit? Without going into an extended discussion of the matter, we may say that it is the reward that comes to the entrepreneur on account of the special advantage which he has to use his talents and employ his capital from the fact that he is

* *Positive Theory of Capital* (Smart's translation), Book V. chap. iii. p. 255 *et seq.*

both a laborer and a capitalist. If we can find out what his income would be if he loaned his capital to others, and also sold his services to others in such a way as to run the same risk and perform the same amount of labor as he does as an entrepreneur, the difference between this income and the total income which he receives as an entrepreneur represents the reward that comes to him from the fact of his double function, and may be called profit.

What has already been said implies the negative answer to the question which was raised, whether risk should have a co-ordinate place in the distributive scheme. Professor Carver, in a foot-note to the above-mentioned article of his, expresses the hope that the progress of economic science will soon make it necessary to deal with the question of risk under the separate heading of insurance. "Of the traditional four channels of distribution, wages would undoubtedly have first impressed itself upon the mind of an economist. Such simple tools as the primitive workman used would scarcely have been regarded as of sufficient importance to call for a distinct treatment. The theory of interest therefore would have developed later than that of wages. Rent and profits followed each in turn. Insurance will probably soon take its place as a fifth channel of distribution." Another and, it seems to me, a better way of looking at the matter is that implied, if not expressly stated, by Cairnes, who includes * "that low degree of risk inevitably attaching to such act" as an element in "abstinence," and who in analyzing labor as a cost finds † that its total disutility is measured by, first, duration; second, irksomeness; third, "risk or liability to injury of any kind attending it." That the assumption of risks receives a reward is beyond question, but it is not clear that this reward can be separated from the

* *Leading Principles of Political Economy*, p. 80.

† *Ibid.*, pp. 79 and 80.

rewards of capital and labor. We never find, unless we are to accept Mr. Hawley's view of the entrepreneur, risk-taking as a function in the productive process except as it is an integral part of the function either of the laborer or the capitalist.

The existence of insurance companies and of vast speculating operations might seem to show that cases exist where risk-taking is the essence of a productive function. When we discuss the economic nature of the insurance business, we shall show that this is emphatically what sound insurance companies do *not* do. Let us look at the other case, that of speculation. We may admit that it is productive in the economic sense. If so, is its essence risk-taking? Speculation which is anything more than mere gambling or fraudulent manipulation of values (neither of which can be called productive) is based on the most painstaking and careful forecast of market conditions. Such activity is to be classed with the function of the entrepreneur or the laborer. Even in speculation, though risk is more prominent perhaps than anywhere else in the industrial system, we find success bound up with hard work and keen judgment. Moreover, the speculator must be the possessor of capital, and there is much force in the contention of Professor Clark that the only person who can risk capital is the capitalist.* The phenomenon of speculation, then, can be brought into the general scheme of distribution with no difficulty without assigning to risk-taking a separate heading.

We have already seen that the assumption of risks must be recompensed. We will now examine the psychological forces which determine this compensation. What I shall say on this subject will follow essentially the views of Professors Mangoldt† and Clark,‡ who have admi-

* "Insurance and Business Profit," *Quarterly Journal of Economics*, vol. vii. p. 40.

† *Unternehmergewinn*, p. 80 *et seq.*

‡ *Quarterly Journal of Economics*, vol. vii. p. 40 *et seq.*

rably stated the leading principles. Professor Newcomb,* speaking of the part of interest which represents reward for risk-taking, says, "Since he himself [the lender] is the sole judge of the risk and the compensation, no sure mathematical law can be laid down to govern the case." While this statement is true, as Professor Newcomb himself shows, we may find some general principles which help us to get at the manner in which the measurement is made.

The amount of probable gain must equal the amount of possible loss, not in the mere objective amount as represented by market values, but according to the subjective valuation of the person who is about to risk his capital or other valuable thing. Mangoldt remarks that among a poor people we see that undertakings which bring in far more to the fortunate than the losses of the unfortunate do not call forth great competition. On the other hand, there are many classes of undertakings where the gains of the fortunate do not equal the losses of the unfortunate. Statistics are said to show that over 90 per cent. of those who go into business become bankrupts. Too much stress may easily be put upon this fact, but it indicates the great extent to which men go into business when the real probability of loss exceeds the probability of gain. In all higher callings the losses are probably greater than they are estimated. Multitudes of young men flock into the law and other such callings. We know from experience that gains may be above as well as below what they should be on the basis of objective facts.

"The loss of a cow to one who is dependent upon it," says Mangoldt, "would cause greater pain than the gain of an equal objective value could possibly compensate for." A man of large resources cannot be charged with improvidence if he plays in a lottery where the probability

* *Political Economy*, p. 310.

of gain is always smaller than the probability of loss, whatever we might say of the ethical aspect of the case. One would be foolish to stake *his all* on a gambling operation, even if the probability of gain were far greater than the probability of loss. Mangoldt gives these formulas to explain the case.* If we suppose that the probability of gain, objectively considered, equals the probability of loss, and that a risk would be taken under those circumstances; if C = cost of the undertaking, U = number of undertakings of the kind in question, S = the number of successful undertakings,— then the amount of gain expected in order to induce the taking of the risk would be represented by the expression $\frac{CU}{S}$.

Now let P = subjective pleasure of profit, and D = subjective disutility or pain of loss, the amount to be received will be $\frac{DCU}{PS}$, which amount may be either above or below $\frac{CU}{S}$, according as D is greater or less than P. The amount must be higher, the more one feels the pain of loss or fails to appreciate the pleasure of gain and the reverse. It will be higher when large sums are risked than when small sums are risked, higher with a poor than with a rich people. It will be higher with a stationary people than with a progressive people. Where a people is in a primitive state and necessities only are produced, there is no room for effective risks, and insurance cannot play any considerable part in distribution. As a people makes progress, it will be more inclined to take risks, even if the gain be small. National as well as individual temperament has a great modifying influence on the disposition to take risks. Tastes also do much to influence risk-taking. A man may go into a dangerous business because it has characteristics which attract him to such an extent that they entirely overcome any disinclination on account of the attendant risk. The people of a nation may be too ready to assume risks. If they

* *Unternehmergewinn*, p. 90.

habitually take risks which exceed the objective probability of gain, it is a disadvantage to the national resources. That the people of the United States do this is not unlikely. Edwin Cannan* thus expresses his opinion of England: "It is probable that in this country, on the whole, we suffer more from the sanguine than from the too cautious temperament, from too much than too little 'enterprise.'"

The relation of the subjective estimate of risks to the corporate organization of industry is of great importance.† John Stuart Mill ‡ gave some attention to joint stock companies, and reached the conclusion that, when any other method was available, it was to be preferred to the joint stock method. Modern experience contradicts his dictum. One reason for the attractiveness of the joint stock principle is found in the fact that, as a man's capital increases, the successive increments thereof have a diminished valuation. He will risk a few increments of wealth near the margin for a small compensation, because a loss there would be of slight consequence to him. Where a man engages in business on his own account, his entire estate is liable for all debts of the business; but, under the joint stock principle, only the capital put into the business is ordinarily liable for the debts of the business. This enables the capitalist to place his marginal wealth in jeopardy; and this action, if not carried too far, is socially desirable. The objective risk to the capitalist is diminished, and his subjective estimate of it still more decreased. This tends to lessen the necessary compensation for risk-taking, and consequently to diminish the gross share of the product which goes to risk-takers.

We have spoken hitherto for the most part as if capital

* *Economic Review*, vol. iii. p. 460.

† This is stated admirably by Professor Clark in his article on "Insurance and Business Profit," *Quarterly Journal of Economics*, vol. vii. p. 40.

‡ *Political Economy*, Book I. chap. ix., Part 2.

were the only thing risked. It is natural to do this, because the most superficial observation shows that, as a general thing, much more is charged for risking capital than for taking the risks of labor. "Capital" is proverbially "timid"; and the larger part of it, by a process of natural selection, has come to be in the hands of those who are relatively prudent. Every man in modern industry is the disposer of his own labor, and the majority of men are neither wise nor prudent. Indeed, it seems almost as if the risk taken by the laborer might be disregarded; but this cannot be done theoretically, and in practice such risks doubtless have some weight. If all men were of equal ability and equally adapted to all kinds of business, such is the rashness of a large portion of the human race that laborers could be found for almost any business without giving very much for risk-taking. But, when society wants a man of highly developed intellectuality for a dangerous post, he will be likely to have a just appreciation of the risk, and will require compensation, not only for his skill, but for incurring danger.

Yet the risks incurred by labor deserve our notice. They may be divided into two classes, which I will call preparatory and contemporaneous. Many kinds of laborers can pursue their callings only after a tedious, lengthy, and often expensive training. When a young man enters upon such a course of training, he risks his time, his money, and his effort. These risks are preparatory risks. The best examples of this kind of risks are found in the learned professions. In the law, for instance, a minority are said to succeed in securing a livelihood. Not only is this true, but those who do earn their living from the profession do not get, extraordinary as lawyers' fees sometimes seem, enough to balance what the others lose. In the words of Adam Smith,* "The lottery of the law is very far from being a perfectly fair

* *Wealth of Nations*, Book I. chap. x., Part 1.

lottery." Notwithstanding this fact, professions of this class are full. Smith accounts for this in part by "the natural confidence which every man has, more or less, not only in his own abilities, but in his own good fortune" (*i.e.*, he is unduly inclined to take risks). No modern writer has stated this fact more truly or more felicitously. Another fact which bears upon the subject of preparatory risk is stated by the same author in this way: "The contempt of risk and presumptuous hope of success are in no period more active than at the age at which young people choose their professions." The excitement actually or apparently attendant upon certain kinds of labor is a powerful factor in overcoming the natural influence of risk. From these facts it happens that preparatory risks do not have so powerful an effect as we might perhaps expect, yet there can be no doubt that multitudes are prevented from entering the learned professions by their influence.

We come to contemporaneous risks, such as are undergone in certain mechanical processes. Some kinds of work must be carried on in great heat, others where dust of a dangerous kind fills the atmosphere. The writer is informed by a credible witness that workmen in powder-mills have a very easy time, and that the pay is high.

Some of these risks which I have classed as laborers' risks are capable of classification among the risks to capitalists. If one ventures capital in attempting to fit himself for a profession or trade in which his chances of success are small, it may be said that it is as a capitalist that he takes the risk. If we follow the nomenclature of Smith,* and speak of the productive qualities of men as a form of capital, of course all risks can be called capitalists' risks; but such a classification would logically obliterate all distinction between wages and interest. So long as we treat labor force as a different thing from capi-

* *Wealth of Nations*, Book II. chap. i.

tal, and consider men as anything more than mere machines, there is a class of risks which cannot possibly be classed as risks to capital. With these it has seemed best to me to class the risks of capital which are taken with the view of modifying by education or otherwise characteristics and abilities of the laborer.

The second main division of insurance I have called *preventive*, a term which I have borrowed from About. All means for the elimination of risks, whether those means are intended to completely destroy the risk which would otherwise exist or are designed to perfectly eliminate it, are here included. This class embraces all those means which Herrmann denominates prevention and suppression. When discussing the word "insurance," I defended the use of the word which includes these means. It remains to mention some of the subdivisions of this department of the subject: (*a*) Mechanical insurance, such as lightning-rods, safety-valves, fire-extinguishers, fire-engines, the duplex check used by conductors. The list might be indefinitely extended. (*b*) Providential insurance, the intelligent foresight which looks forward to possible dangers, and avoids them. Whatever strengthens man's intelligence adds to the effectiveness of this means. Inspection of various kinds comes under this head, and is sometimes combined with the business of insurance, as in the Hartford Steam Boiler Inspection and Insurance Company,— in this case with most favorable results. (*c*) Ethical insurance, the restraints which morals place upon men so far as they make economic prosperity possible. The labors of teachers and preachers can be placed here by the economist. (*d*) Legal insurance. Much of the action of government through police, courts, fire departments, etc., might be put here. These instances are only typical, and the list makes no pretence of being complete.

The third great division of insurance is *compensatory* insurance. The fundamental characteristic of this kind

of insurance is the transferring of the burden of a loss to a place where it will be less severely felt or making good the loss in whole or in part. This kind of insurance is in a sense a rival of the preceding. Herrmann in his *Theorie der Versicherung* * discusses the respective spheres (*Kreise*) of "prevention," "suppression," and insurance (using the word in the same sense that I later use the expression "technical insurance"). Each one has its own place of greatest usefulness; and all these should work together and supplement each other,—a fact which Wagner seizes upon as an argument for state control of insurance, saying that, as the state has control, for the most part, of the first and second, it ought to control the other also, in order that all means of resisting harm may be co-ordinated in the best way. Herrmann's treatment of the subject, though I prefer a different classification, seems very satisfactory. It amounts to this: that preventive insurance should be employed just so far as it is cheaper than compensatory insurance, and no further. If the cost of making buildings fire-proof is greater than the cost incident to a larger destruction by fire than would occur with the more expensive structures, it is desirable that buildings burn and their owners be compensated. There is a maximum desirable preventive insurance and a maximum desirable compensatory insurance. Both are attained when the last dollar spent for preventive insurance yields the same advantage as the last dollar spent for providing for compensation in case of loss.

While these varieties of insurance are competitors in some fields, it is evident that neither can take the place of the other. Some risks, were preventive insurance removed, would become so great that compensatory insurance could not cope with them. Experience in Germany shows that hail insurance is more or less successful in neighborhoods where the danger is small, but that hail

* Page 89 *et seq.*

insurance companies rarely succeed where the average of danger is great. On the other hand, however perfect preventive insurance is made, it will fail to give complete security.

The first kind of compensatory insurance is self-insurance. The principle of this is the same as the principle which we have referred to as helping to make the corporate form of industrial organization attractive and popular. A man insures himself against a loss which will give him great subjective pain by providing a fund out of which he can replace that which has a high subjective valuation by substituting what before had a lower subjective valuation. Saving is the best example of this. The prudent laborer sees to it that he has an account at the savings-bank. This insures him against want. Suppose that he falls sick. His ordinary income falls off, and he draws upon his account to supply those commodities which have a high subjective utility. Where is the shifting of the burden in this case? It consists in this: that the money saved and put in the bank was taken from the last and, therefore, least useful increments of his former earnings, and these increments are now made to step into the place of the first and most useful increments of the wages which he would have earned if sickness had not intervened. Every increase of a man's wealth insures him more and more against losses entailing great pain. It is conceivable that in a highly rational society the motive of insurance might suffice to secure adequate capitalization, even if there were no interest on capital.

Another form of self-insurance is that in which one can, because of the extent of his possessions, dispense with the services of insurance companies. A man known to the writer never has an insurance policy on his houses, which are both numerous and scattered. It is cheaper for him to bear all losses falling upon his property than to pay the premiums of insurance companies. The reason

he can do this is of course that the management of insurance companies is expensive. If it cost nothing to manage a company, it would be a matter almost of indifference to this man whether he was insured by a company or not. The fact that the wealthy man can insure himself more cheaply than the insurance companies gives him an advantage in the competition of producers, and enables him to gain the difference between the cost of carrying his risks himself and the cost of having the insurance companies carry them. This opportunity for extra gain by the large producer is one of the advantages of production on a large scale; and the gain itself is a part of those gains aptly designated by Mangoldt* as the "rent of the large producer" (*Grossunternehmerrente*). Of course, production on a large scale has disadvantages as well as advantages; but this is not the place for discussing them.

We now come to what I have designated technical insurance, or what is generally understood by the insurance business. Many writers would allow the name of insurance to this kind only. Wagner, who is the chief German authority on the subject, thus defines insurance:† "Insurance in the economic sense is that economic arrangement which removes or at least diminishes, so far as the means (*Vermögen*) of a person are concerned, the injurious consequences of single events which are accidental to the person affected, and, therefore, in the single cases of their entrance unforeseen, in such a way that it distributes these [injurious consequences] upon a series of cases in which a similar danger (*die gleiche Gefahr*) threatens, but does not (at least not now or not yet) actually enter." This definition has the merit of calling attention to the true economic nature of the operation of the insurance business, which is the distribution of

* *Unternehmergewinn*, p. 136.

† In Schönberg's *Handbuch der politischen Oekonomie*, p. 942.

the loss wholly or in part upon others who were at the beginning of the insurance period subject to the same risk. I would define technical insurance as that arrangement by which persons subject to a risk agree directly or indirectly with each other that those who escape the threatening event will make up to those who suffer by it the whole or a part of the loss. The motive for doing this arises from the fact that the subjective estimates of the risks are greater than the actual chance of injury. The arrangement may be made by the simple agreement between the parties insured without the prepayment of any premium and an assessment be levied when any occasion therefor arises. A more complex form of mutual insurance company may be used or a stock company may come in as an intermediary. In all cases the economic essence of the operation is the same as in the simplest form.

In order to carry this form of insurance on successfully, a rather complex organization is usually necessary. Advance premiums have in practice been found indispensable to all kinds of safe insurance. If premiums are not paid in advance, many of the economic circle entering into the arrangement will be either unable or unwilling to pay as they have agreed. If premiums are to be paid in advance, some experimental knowledge of the probable loss is necessary. In the case of many kinds of risks reliable statistics are entirely wanting, and in some classes of risks entirely impossible.

If our explanation of the true economic nature of technical insurance be the correct one, it is evident that a stock company organized for the purpose of insuring against risks is a risk-taker in an entirely different sense from that in which risks are usually taken. It takes the risk from the insured, but it does not take an equally hazardous position itself. Insurance men know from statistics approximately how many losses they will have

to meet. What to the insured was an uncertainty or risk becomes a practical certainty. The men who invest their money in an insurance company supply the necessary machinery by which the loss is distributed on those subject at the outset to the same risk. It is for these reasons that I think that the insurance business does not furnish any basis for giving insurance or the assumption of risks a separate share in distribution.

The main purpose of technical insurance is to relieve the individual of the burden of risk resting upon him. Aside, however, from the direct effect of technical insurance, there are certain subsidiary effects upon the social organism. Some of these effects are good, and some are unfavorable. Let us consider the good effects: (*a*) The decrease of the cost of production. Under the head of producer's insurance we saw that risk to the individual producer was a subjective cost, and that marginal subjective estimates of risk enter in as a determinant of objective cost. Now, technical insurance comes in, and removes the major part of this item of cost. The producer, in place of carrying a risk that is burdensome to him, pays a premium which is relatively light. Nowhere is this more true than in the case of marine insurance. Imagine that marine insurance did not exist. The shipping business would be carried on only by great companies possessing many ships, so that they could get the benefit of self-insurance. It needs no argument to prove that the price of foreign merchandise would be much higher than now. Fire insurance is another excellent example of this fact. This brings us directly to the next advantage of technical insurance, which is a corollary of what has just been said. (*b*) It makes it possible for small producers to hold their own, where otherwise they would be forced out of business. (*c*) Technical insurance prevents the impairment of the productive force of society by putting productive agents back into their old positions after a disaster.

President Walker * shows how labor may become permanently degraded as the result of temporary misfortune. Suppose a village whose chief support is a single industrial establishment. Suppose this establishment burned, with no insurance. The employer cannot readily transfer himself to another place where his talents can be used so advantageously, and the same is true of the laborers. Both become discouraged, and the industrial efficiency of master and man may be forever impaired. Insurance guards against this calamity. Fire insurance, accident insurance, and insurance against sickness are efficient in the same way. Life insurance in a more direct way accomplishes the same result by keeping families together, and allowing the orphan children to be brought up with proper training, all of which results ultimately in increased productivity. (*d*) Technical insurance is an aid to credit. The practice is universal of requiring houses, or other inflammable property on which money is raised by mortgage, to be insured. Without insurance, many who now borrow freely from savings-banks and other lenders would be unable to borrow at all, and others would borrow only at ruinous rates. (*e*) Life insurance combines what I have called self-insurance of the nature of saving with technical insurance. A form of life insurance which does not do this is conceivable, and has sometimes been tried; but the common form lays aside a reserve fund against the claim of each person insured. This form of insurance, therefore, encourages capitalization. This, to be sure, is not a net gain, because a man who is insured, feeling a sense of security, is likely to spend that part of his income which is left after paying his insurance premium more freely than would be the case if he were not insured. But, as premiums are generally paid out of income, we may conclude with Schönberg † that "there is generally a stronger building up of private

* *Wages Question*, chap. iv. † *Volkswirthschaftslehre*, p. 798.

capital than would otherwise follow." (*f*) The sociological and ethical effects which result from the security and comfort which insurance gives are influences for good.

The good effects above enumerated are not without some offsetting disadvantages. Security is good, but security as well as hazard may have an unfavorable effect upon industry. (*a*) Intensity of effort is diminished. Make the ordinary man's future secure even on a low material basis, and his energy will flag to some extent. (*b*) Carelessness is encouraged by insurance. Much wealth, for instance, goes up in smoke simply because vigilance is relaxed on account of the property being insured. (*c*) The greatest disadvantage of technical insurance is the encouragement which it gives to dishonesty. Property is wilfully destroyed to get insurance, thus increasing the net amount of property destroyed and increasing the cost of insurance to honest men. I have been informed that where a mill burns in a factory village the village hotel is almost sure to follow. The same informant states that a prudent insurance man of his acquaintance makes it a rule, on learning of the burning of a mill in a village, to cancel all insurance held by him on the hotel. It is estimated * that from 35 to 50 per cent. of the loss by fire in the United States is chargeable to incendiarism.

This evil is largely aggravated by the willingness of agents to place insurance for as large sums as possible for the sake of commissions. If any method could be devised by which the amount of insurance could be restricted to the economic value of the property insured, this kind of social loss would for the most part be abolished. There would still remain the moral hazard of excessive estimates of loss where there was no dishonesty in the origin of the fire. Is there any way in which society can protect itself against the waste by incendiary fires? The

* Thomson, "Waste by Fire," *Forum* (September, 1886), vol. ii. p. 27 *et seq.*

only effective means would be some method of getting the face of the policy down to the economic value of the property, or, better still, somewhat below the economic value. Insurance ought never to remove the entire burden of risk from an owner. Probably the so-called valued policy laws of some States, which make a company pay the face of the policy in every case of total destruction, were designed to force the companies to investigate and restrict themselves to the true value in writing the policy. If so, the attempt has so far been a failure.

Technical insurance is attended with a large expense for management, and, at present, this is excessive. Not that insurance men make greater gains than other business men, but there are more agents for all kinds of insurance companies than there is economic justification for. This is true of a great many other kinds of business. But insurance furnishes one of the best examples of the tremendous wastes of the competitive system, which the socialists urge with such force and truth. Wagner* rightly makes it one of his chief arguments in favor of state insurance.

The question how wide a sphere can be occupied by the insurance business deserves our attention. The conditions which are desirable and to some extent essential to the successful application of the principle of technical insurance to risks are set forth by Wagner,† and what I shall say on this subject will follow his treatment. The first condition is that the harmful event must be for the person affected an accident. It must either be an event which he cannot bring about or which, under ordinary circumstances, it is against his interest to bring about. This condition is perfectly realized in the case of hail

*"Der Staat und das Versicherungswesen," *Zeitschrift für die gesammte Staatswissenschaft*, vol. xxxvii. p. 102.

†Schönberg, *Handbuch der politischen Oekonomie*, chap. xxv. pp. 948–950.

insurance. In all forms of life insurance it is with slight exception secured; but in fire, marine, and live stock insurance it is far from being fully realized, though the condition is in most of these cases so far realized that such forms of insurance are of the greatest advantage. The second condition is that the cause of the injury must be to a large extent controllable and recognizable with certainty, and the kind and extent of the economic results consequent upon an injury ascertainable and measurable. The great danger of simulation in sick insurance makes that form of insurance very unsatisfactory, and will probably prevent its success on any large scale, though it may have a very useful field when carried on in connection with lodges or by friendly societies whose members know each other sufficiently to guard against an excess of this evil. In hail, fire, marine, and live stock insurance it has been found difficult to determine the extent of the economic injury. The third condition is that the event against which the insurance is placed ought to be of such a character that it should not be likely to occur in all possible cases or in a very great number of cases at the same time. Its probable occurrence should be distributed in time and locality. All good insurance companies guard against too great localization of their risks. The difficulty of realizing this condition has made hail insurance of little value, and has rendered impossible insurance against the damages of floods, earthquakes, insect pests, etc. For the same reason insurance against losses from commercial and industrial depressions are also impracticable. The fourth, and perhaps the most important, condition is that the probability of loss be experimentally ascertainable. Here statistics have great significance. By statistics, according to the so-called law of large numbers, empirical laws are discovered. Losses can by statistical investigation be assigned to their causes, and the influence of different conditions on losses be approxi-

mately determined. There is much hope for progress in this direction.

The principle of technical insurance has been applied with success in insurance against dangers of the sea, accidents, boiler explosions, lightning, and death. It has also been applied to land titles, and companies for the insurance of honesty in persons who are placed in positions of trust are having a deserved success. In these cases there can be no doubt that the advantages of insurance far outweigh all disadvantages. In Germany hail insurance and stock insurance have been tried with some success. In both these cases there are difficulties which make it doubtful whether they will ever be widely employed. Statistics of sufficient accuracy are wanting, and the opportunities for fraud are great. Still, this kind of insurance may have a useful field. Insurance against sickness, mortgage insurance, the insurance of rents and interest, and insurance against depreciation of commercial paper or stocks and bonds are possible but more doubtful forms.

Leaving now the question of technical insurance, let us return in conclusion to the general aspect of the subject, and ask ourselves what is the effect of economic progress upon risk and insurance. In the early part of this paper the distinction was drawn between effective and ineffective risks. This marginal line which may be conceived of at any given time as fixed changes with dynamic changes in society. All progress which makes government more effective, knowledge more diffused, and ethical conduct more general, tends to lower this margin by making security more fully attainable. This change also makes possible the production with some risk (it may be a large risk) of things which were previously not to be produced at all either on account of their certain or almost certain destruction, if produced, or on account of the lack of the means for producing them. The effect

of this lowering is to increase the field of effective risks. Risks previously below the margin now enter in as costs. As society advances and reason dominates more and more, certain risks will be assumed with far more caution than at present. Reference has already been made to the ease with which laborers are found for dangerous employments. Many of the motives which lead men into such employments are irrational. If a more correct conception of the extent of risk and a more just estimate of the worth of human life become diffused, the subjective estimate of risks will increase, especially among laborers. But the greatest increase in the importance of risks may be expected in the multiplication of those risks which we have called dynamic. As society advances and changes with constantly accelerating rapidity, as there is every reason to expect it will, the amount of dynamic risk promises to become appalling. Even now it is said that methods change so rapidly that a man who builds a large machine shop must, before a stroke of work is done there, remove some of his machinery and replace it with later patterns. All these influences tend to make the reward of the risk-takers a constantly enlarging fraction of the total income of society.

While progress in all these ways tends to increase the importance of risks, it also eliminates or diminishes risks in other ways. Ethical progress removes more and more moral hazard. Science vastly reduces many forms of danger. Government regulation removes others. Perhaps we can say that, objectively considered, static risks tend to diminish with progress, but the subjective estimate of risks in general and the number and magnitude of dynamic risks will tend to increase, so that the importance of risks in economic life may be expected to increase rather than diminish.

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THE EFFECT OF AN EIGHT HOURS' DAY ON WAGES AND THE UNEMPLOYED.

"The observations in the preceding chapter had for their principal object to deprecate a false ideal of human society. Their applicability to the practical purposes of present times consists in moderating the inordinate importance attached to the mere increase of production, and fixing attention upon improved distribution and a large remuneration of labor, as the two desiderata." J. S. Mill, *Political Economy*, Book IV. chap. vii. sect. 1.

THE reader may remember the account given by the late Professor Thorold Rogers, in his *History of Agriculture and Prices*, of the effects on wages produced by the Black Death.* In 1349 and 1350 that pestilence destroyed a large proportion, perhaps one-third, of the English population, and was followed by important economic and social changes, including a general rise of wages. The money wages of male agricultural laborers throughout England were on the average 50 per cent. higher in the half-century following the Black Death than during the ninety years before it.† The increase was different in different agricultural occupations and in different parts of the country. The price paid for threshing oats, which had been exceedingly low before the plague, rose from 44 to 111 per cent. Wages in employments requiring little skill rose most. The wages of women engaged in farm labor rose fully 100 per cent.; and boys' labor became especially dear. The wages of artisans rose *pari passu* with the wages of agricultural laborers. As for real as distinguished from money wages, the prices of most manufactured articles increased much; but there was no rise in the price of grain. After the plague the demand for labor exceeded the supply. "We are told that crops were often suffered to rot in the fields for want of hands; the cattle and sheep roamed at large over the country for lack of herdsmen; that land went out of cultivation, and that the grandees were utterly impoverished." ‡ Professor Rogers enunciates the following prin-

*Rogers, *A History of Agriculture and Prices in England*, vol. i. chap. xv. pp. 252–302.

†Rogers, *Six Centuries of Work and Wages*, p. 237. ‡*Ibid.*, p. 227.

ciple concerning the price of labor: "When by any series of causes or by any one dominant cause the demand for labor far exceeds the supply, the largest rise will take place in such kinds of labor as, first, are required on particular emergencies; and, secondly, which were before the scarcity occurred paid at the lowest rate. In other words, a scarcity of labor affects the cheaper kinds of labor more fully than it does those which are most expensive." *

It may be true that the great rise in wages after the Black Death took place mainly at the expense of rent, and was due to the recession of the margin of cultivation accompanying a heavy reduction in the population. Nevertheless the fact remains that a great rise in wages occurred which was not the result of an increased national dividend; for the national dividend had decidedly diminished.

I venture to think that a general gradual shortening of hours of work at the present time, resulting in a diminished product per worker (or, more accurately, in a less rapidly increasing product per worker), would lead to a rise in the price of labor, if not in the daily wage of the laborer, and to a reduction in the number of the unemployed. To whatever degree more intense and efficient labor should offset the loss of product resulting from reduced hours, the direct economic effects of a shorter day would be neutralized.

The argument of workingmen that the general adoption of an eight hours' day would raise wages and absorb the unemployed is well known. A reduction in hours of work would be equivalent to the withdrawal from the ranks of men now employed of a certain number of laborers. The gap thus made would be filled by the unemployed. It is the competition of the fringe of unemployed or intermittently employed (comprising 10 per cent. of the working classes in England in normal years, according to Mr. Tom Mann †) that keeps down the wages of the employed. If the number of the unemployed were lessened, wages might rise.

The reply which has been made to this argument by Mr.

* Rogers, *History of Agriculture and Prices*, vol. i. p. 274.

† *Memorandum on the State Regulation of the Hours of Labor*, by T. Mann, being Appendix LXXI. p. 127, in the appendix to the minutes of evidence taken before the Royal Commission on Labor (sitting as a whole).

John Rae in his valuable and entertaining book, *Eight Hours for Work*, and by other writers, does not appear to be conclusive. It is said that the demand for work comes from the product of work, and that commodities constitute the demand for commodities. If the output of commodities falls off, the demand for them, and therefore for labor, must fall off also. So that (it is said), if a general reduction of hours resulted in a diminished national dividend, wages, instead of rising, would fall. In Mr. Rae's words, "The only way to increase the demand for labor all round is to increase the production of labor all round, and a general or serious diminution of production always causes a general or serious decrease in the demand for labor." * "But, if all trades together were to restrict their output in the hope of distributing the work better, they would find they had merely less work to distribute; and, instead of making work for the unemployed, they would have unmade the work of a considerable portion of those now employed." † "The effect of shorter hours on the general wages of labor depends entirely on their effect on production. If they lessen production generally, they will lower wages generally." ‡

Mr. Rae's position seems perfectly clear, but it depends on a half-truth. *Ceteris paribus*, wages vary with the productiveness of industry, but only *ceteris paribus*. The theory that wages depend entirely on the efficiency of labor, or on the product of industry, is a new form of the old doctrine of the wages-fund. The characteristic feature of the classical doctrine was the assumption that the wages-fund was an inelastic quantum of the total circulating capital. The error of the theory that wages are measured by amount of product is in the implication that the proportion of wages to the total product of industry is at any given time rigidly fixed. According to the theory that wages are limited by capital, wages might rise if capital increased. According to the doctrine that wages depend on product, wages may rise if the product increases. Both theories ignore the fact that a change in the volume of the national dividend may be accompanied by a readjustment of the relative proportions of the shares in distribution which will neutralize, or more than neutralize, the

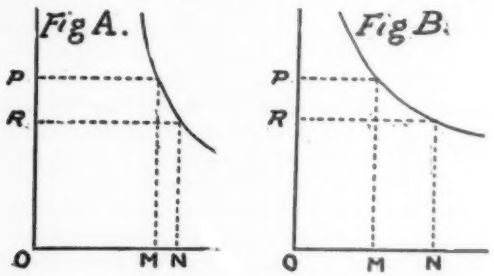
* *Eight Hours for Work*, p. 233. † *Ibid.*, p. 215. ‡ *Ibid.*, p. 242.

effect of the change in the national dividend so far as any particular one of those shares is concerned. If the national dividend is diminished, the wages-fund will be diminished, profits will fall, interest and rent will be diminished, provided only that the relative magnitudes of wages, profits, interest, and rent remain unaltered. It does not follow that if shorter hours lessen, or tend to lessen, the national dividend, they will necessarily lessen the wages-fund. For the wages-fund is the product of two factors: it is the national dividend multiplied by a ratio.

Now, what determines the proportions in which the national income is divided into wages, interest, rent, and profits? If Professor Alfred Marshall is right in regarding both distribution and exchange as governed by the same law of value, these proportions vary with the r tios at which labor, business ability, and the uses of land and capital exchange. Wages, interest, rent, and profits are the prices of the factors of production. They are determined, as the prices of all commodities are determined, by marginal utility. If the supply of one of the factors of production, as compared with the demand for it, is contracted, its marginal utility increases and its price rises. The demand for any one of the factors of production is the supplies of the other factors. The ratios at which labor, business ability, and the uses of land and capital exchange depend on the quantitative relations of the factors of production. In a new country capital is not abundant, is restricted to its more profitable employments, and interest is high. In a new country where land is plentiful a comparatively small portion of the national income is paid in the form of rent. Abundance of fertile land makes a nation rich, but it does not make land-owners rich. It is not to the advantage of the national dividend that capital should be scarce, but scarcity of capital goes along with a high rate of interest. In like manner, if the supply of labor in the community is reduced by the adoption of shorter hours of work, product may be lessened, but the price of labor will rise. A contraction in the supply of labor, followed by a rise in its price, would lead to an absolute diminution in the demand for labor, but not in the demand as compared with the supply. The marginal buyers of labor would withdraw from the market, and labor would withdraw

from its marginal or least productive employments. It is true, as Mr. Rae and others have pointed out, that the demand for work comes largely from the product of work, and that to reduce the product would be to reduce the demand. But the price of labor does not depend on the demand for labor, but on the demand considered with reference to the supply. The extent of the rise in price, due to restriction of supply, would depend on the character of the demand curve for labor.

Now, the price of labor is one thing, and the daily wage of the laborer is another. The daily wage of the laborer varies



not only with the price of labor, but with the amount of work done in one day. If a reduction of hours leads to a diminished daily output per worker, the daily wage will fall unless the rise in the price of work is great enough to offset the loss resulting from the diminution in output. The daily wage is the product of the price of a unit of labor multiplied by the number of units accomplished in one day. Eight units of work, at 12½ cents per unit, yield the same wage as ten units of work at 10 cents per unit. Whether the daily wage of the laborer would increase, hours having been shortened, depends on the character of the demand curve for labor. If the price of labor, represented in the figures by vertical lines, rises rapidly as the number of hours worked (or the supply of labor) diminishes, the wage of a day of eight hours may exceed that for a day of ten hours. This is the supposition in figure A. O R is the price of labor per unit of time, when O N is the length of the working day; O P, the price of labor per unit of time, when the number of hours worked is reduced

to O M. The rectangle R N represents the daily wage in the first instance, and the rectangle P M in the second. P M is larger than R N. In figure B the demand curve rises less rapidly; and, though O P is greater than O R, the rectangle P M is smaller than R N. If the demand curve for labor is like the curve in figure A, shorter hours will increase wages; if like that in figure B, diminish them. But a diminution in amount of work done (or offered to be done) or in the supply of labor would probably produce different results in different occupations and grades of labor. I do not see how it is possible to predict these effects; but there is no evidence that the demand curve of labor in most occupations is certainly more like figure B than figure A. There is some reason to believe that, even if wages should tend to fall for a time, as a net consequence of opposing influences, a reduction in hours of work, by lessening the number of the unemployed and thus making effective combination among laborers less difficult, would raise wages eventually by checking competition among the sellers of labor and making a partial monopoly of it.

For, whatever immediate effects shorter hours might have on wages, they would certainly tend to reduce the number of the unemployed; or, more exactly, as Mr. Sidney Webb puts it, to transfer some of the intermittently employed to regular employment. There is at present a demand, at current prices, for a certain aggregate quantity of labor (not for a certain number of laborers). Let us suppose, for the sake of the argument, that all laborers are paid by the piece. Nominally, of course, all laborers are not so paid, but underneath the appearance of a time-wage there is always the reality of a piece-wage; and a reduction in the supply of labor will have the same effects on its remuneration, measured directly by amount of product or indirectly by length of working-time. Assuming piece-wages to be universal, the first result of shorter hours, theoretically, would not be a change in the price of labor: the price of labor would not rise instantaneously, and therefore the daily earnings of the average worker would fall, his out-put being reduced. But the demand for labor would remain as before, there being as yet no change in its price; and the demand would be satisfied no longer. There is no reason why this unsatisfied demand would not be met by

the unemployed. But, as soon as the unemployed began to be absorbed, a new tendency, affecting the price of labor, would develop. The price of labor, before hours were shortened, was determined by the relation of demand to supply. As soon as the number of unemployed began to diminish, that relation would change, and consequently the price of labor would rise. Practically, the tendency toward a higher price would appear contemporaneously with the demand for the services of the unemployed and the shortening of hours. The higher price would cause some of the buyers of labor to drop out of the market, not quite so large a quantity of labor would be demanded as before, and the net result of the reduction of hours would probably be a slightly diminished product. Whether the wages for eight hours' work would equal those for ten hours' work would depend, in different occupations, on the character of the demand curves for labor in the first place; and, in the second, on the measure of strength which the restriction of the competition of the unemployed would add to the position of labor organizations in their perennial contest with employers.

Trades-unions have found it economical in the long run to support their unemployed members by out-of-work pay, in order to prevent the competition of the unemployed from depressing the wages of the employed. By checking competition within their own ranks, and acting as a unit, trades-unionists have obtained a substantial rise in wages in many occupations. When laborers are completely organized, the price of their labor is not determined by competition: it is determined, as any monopoly price is determined, arbitrarily by the sellers, with a view to obtain the maximum return for the entire quantity of commodity sold. Now, shorter hours of work would give to large numbers of laborers, at present unorganized or imperfectly organized, an opportunity which they are far from possessing. These workers are now under the tyranny of competition. They keep down their own wages by bidding against each other, or rather the casually employed keep down their own wages by bidding against each other, and the wages of the regularly employed by bidding against them, and standing ready to take their places at wages-current. To whatever degree, by a redistribution of work, this cut-throat

competition could be mitigated, it would become possible to control the supply of labor, and to exact a monopoly price for it. In order to reduce the severity of this competition, or practically destroy it altogether, it would probably be good policy for the employed to divide even the present wages-fund with the unemployed. With the unemployed out of the way, effective united action on the part of laborers would be possible, and considerable advances in wages obtained, especially by the lower grades of unskilled workers.

But it has been said that, while a single trade may increase wages by regulating the supply of labor, all trades together cannot. This amounts to saying that a general rise in wages (relatively to the other shares in distribution) is impossible. It amounts, as I have already pointed out, to a doctrine of a rigid wages-fund. For, unless wages can be raised by checking competition among workingmen, they can hardly (relatively speaking) be raised at all in the present social order. There is no assurance that the constant growth of the national dividend, under a régime of unchecked competition, is accompanied by a corresponding increase in wages. Certainly there is no assurance that, as the national dividend continues to increase, wage-earners will obtain an increasing proportion of that dividend, under a régime of unchecked competition. It would seem a kind of economic fatalism to hold that a general rise of wages, if achieved at the expense of the other shares in distribution, could be only temporary; that to diminish the return to capital, or the wages of superintendence, would be to diminish saving and lessen the energy of business undertakers so greatly as soon to produce a recoil on the heads of the working classes. Clearly, however, if a diminution in the available supply of labor and a general though gradual rise in wages led to reduced saving and something like a corresponding diminution in the supply of capital and business ability, the supplies of the factors of production would tend to reassume their former proportions, and wages to fall back again, unless, which is by no means improbable, labor organizations, once firmly on their feet, could prevent wages returning to a competitive basis. It is true that capital now accumulates because of savings made out of interest, rent, and especially out of business profits. A comparatively small percentage of

wages is capitalized. Probably, however, a gradual increase in wages would mean a diminution, not in the absolute amount of the rent, interest, and profits fund, but in the rate at which that fund expands. In other words, the fund out of which savings are now mainly made would grow less rapidly: capital would continue to accumulate, but at a slower rate. Probably, however, with a larger wage-fund, a larger percentage of wages would be capitalized; and a check upon the rate at which the rent, interest, and profits fund expands would result in a tendency towards reduced expenditure out of that fund, or towards saving a larger proportion of interest, rent, and profits. Then a higher standard of life among laborers would stimulate the growth of capital by making possible the development of a considerable amount of inventive genius now latent for lack of opportunity.* It is possible that a slightly diminished rate of interest, supposing it to occur, would tend, on the other hand, to discourage saving; but a falling rate of interest has not had that effect in the past. Savings are made for security as well as for their income-yielding power, and in some cases a lower rate of interest would actually stimulate saving. Capitalists, confronted by a falling rate of interest, would in many instances reduce their expenditure and add to their principal, in order to prevent a diminution in their resources and receipts. It is hard to see how the rate of interest could fall, however, or fall more rapidly than at present. For, if the rate at which capital accumulates is reduced, owing to a diminished rate of expansion of the rent, interest, and profits fund, the rate of interest, which tends to fall owing to the increase of capital, would fall less rapidly. The entire question as to the reaction upon wages of a diminution in the rate at which capital expands in a speculative one, and complicated by various considerations. For instance, it is not certain that the demand for labor increases in proportion to the increase in the supply of capital and machinery. By the adoption of shorter hours for work the available supply of labor in relation to the demand for it would be reduced, and the price of labor tend to rise. But, if the higher price checked the growth of capital, it would hardly check the demand for labor to an equal degree. On the whole there seems to be little solid ground for denying

*See Marshall, *Principles of Economics*, vol. i. p. 272.

that the wages-fund might obtain, year by year, the lion's share of the increase in the national dividend.

For shorter hours will come gradually in one trade after another. And they will come gradually in every trade, for overtime work will disappear slowly. There is therefore no reason to anticipate that the national dividend will be diminished absolutely, though production may be less with short hours than it would be with long. Nor is it likely that the daily wages of laborers will actually fall, even when the shorter day is first introduced. Laborers are not willing to accept the shorter day along with a heavy reduction in wages. Therefore, it is likely that in the first instance a reduction in hours will be obtained in lieu of a rise in wages. Shorter hours, thus obtained, would imply an addition to the wages bill; but the addition would go to the unemployed rather than to the employed. But, however the economic effects of a reduction in hours of work might be obscured, they would be none the less real. Daily wages would tend to fall, owing to a diminution in the output per worker, and tend to rise because of the increased demand for labor as compared with the supply. The net result of these counteracting tendencies would be different in different occupations. But the increase in the demand for labor, as compared with the supply, would reduce the number of the unemployed. Effective combination would become possible among many laborers now unorganized or imperfectly organized, competition could be checked among them, and their labor sold, approximately, at a monopoly price. And, in accordance with the principle of Professor Thorold Rogers,— quoted in an early paragraph of this article,— the gain would be greatest for unskilled and casually employed workers. They suffer most from excess in the supply of labor, and have heretofore made little progress towards effective organization.

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NOTES AND MEMORANDA.

Ohio has long had a leading place among the States which have tried, by legislative ingenuity, to enforce a complete return of all property, real and personal, for taxation. Nowhere have the provisions of the law been more searching; and in few States, if any, have they been more fruitless. The Ohio Tax Commission of 1893 showed that, of the valuation of the whole State, less than 10 per cent. rested on intangible property, and in the city counties little over 5 per cent. In Cincinnati the valuation of intangible property appears to hover around 3 per cent. of the total for that city, the tendency in the city counties generally being towards a decline in the proportion of intangible property to the whole.

The law in Ohio since 1885 has endeavored to stimulate returns of personal property by allowing county commissioners to contract with informers for a share, not exceeding 25 per cent., of the tax recovered on personal property which may be disclosed by their efforts. A report lately made to the Cleveland Chamber of Commerce by its Committee on Taxation makes some interesting statements as to the actual operation of the "tax inquisitor" system: —

> The collection of taxes under this law has been abandoned in a number of counties of the State. The mine seems to have been pretty well worked out almost everywhere in the State save in this county [Cuyahoga]. In only eleven counties out of the eighty-eight do the amounts collected reach $10,000 each. In Hamilton County [Cincinnati] it has sunk to $15,000. In thirty-one counties of the State not a dollar was collected from the operation of this law last year.

The collections for the State amount to $506,000, of which more than half came from three counties where inquisitors struck exceptionally productive veins.

> In a few counties some little money is obtained, which immediately results in the tax-payers from whom it is collected leaving the county

and ceasing to pay taxes in the State thereafter. In the greater part of the State a few wealthy people are soon exhausted, and then the results of the law drop to nothing.

The following statements give a tolerably clear view of the nature of the business of tax inquisition, as carried on under the law of an American Commonwealth, for the enforcement of an impracticable system: —

In the three counties of Hamilton, Cuyahoga, and Summit the whole amount received by the tax inquisitor during the period of the operation of this law has been $360,087. It is a matter of common notoriety that the contract in this county [Cuyahoga] has been held by one individual from the time these contracts were first made. This same informer has been and is now the tax agent in Summit County. His brother is now, and has been since the beginning, the tax agent in the county of Hamilton.

It is added in a note that —

These gentlemen have had contracts as tax inquisitors in several other counties during the same period. What they obtained in the other counties is not known.

It is announced that a School of Economics and Political Science will be organized in London under the direction of Mr. W. A. S. Hewins and begin its work in October, with the support of the Society of Arts, the London Chamber of Commerce, and the London County Council.

The scheme of the school is to comprise: —

(*a*) Public lectures and classes in economics, statistics, commercial geography, history and law, banking, currency, finance, taxation, and political science generally.

(*b*) A three years' course of study in special classes.

(*c*) The promotion of original research by scholarships or otherwise.

(*d*) The publication of the results of research carried on by the teachers of the school or under their direction.

(*e*) The collection of a library for the use of the school.

(*f*) "The organization of an 'information department,' to assist British students and foreigners visiting England for the purpose of investigation."

The school is to be open both to men and to women, and the fees are to be low. The lectures and classes are to be held in the evening hours, but the arrangements will be such that students can pursue their studies during the daytime under proper guidance.

Lectures and classes have already been arranged as follows:

"The State in Relation to Industry and Commerce," historical course, by Mr. W. A. S. Hewins; "Economic Effects of Alien Immigrations," by Rev. Professor Cunningham; "Railway Economics," by Mr. W. M. Acworth.

"Commercial Geography," by Mr. H. J. Mackinder; "History of English Commerce," by Mr. W. A. S. Hewins; "Commercial Law," by Mr. J. E. C. Munro.

"History and Principles of Banking in England," by Professor Foxwell; "The Bank of France," by Hon. A. G. V. Peel.

"Local Taxation," by Mr. Edwin Cannan and Mr. E. J. Harper.

"The English Constitution since 1832," by Mr. Graham Wallas.

It is expected that lectures will also be arranged on the "Growth of Political Theory" and the "Comparative Study of English and Foreign Constitutions."

THE collapse of the income tax of 1895, under the decision of the Supreme Court of the United States, has probably caused more surprise than grief. Nothing could disguise the fact that, considered as a financial measure, the tax was hastily and clumsily arranged, and that its provisions defied the teachings both of equity and of experience. It offended, as a piece of class legislation on the one hand, and by its weakness failed to satisfy those who demanded such legislation on the other hand. Such strength as it had with the public was in a considerable degree sectional, and deepened the distrust of many who might have been willing to see incomes taxed under more favorable conditions.

But that the tax should disappear by reason of a construc-

tion of the Constitution which practically forbids the levy of a national income tax is an event likely to cause regret which will strengthen with time and reflection. A most valuable financial resource is thus lost, for which there is no available substitute,— a resource specially adapted for use in emergencies and at times when, as in the Civil War, indirect taxation is strained as far as it will bear. The decision of the court that "direct taxes," in the language of the Constitution, is a phrase of wider meaning than had been held in previous adjudications, must be accepted. But it follows that, in one important respect, the government established by the Constitution is not so strong as it had been supposed to be, and probably not so strong as the majority of our people would desire to have it.

It must be added that the fact that the decision of the court in this case was the decision of a bare majority is not the least disagreeable circumstance of the case. The possibility that the adjudication which thus reversed a previous line of decisions may itself be reversed hereafter upon some slight change in the composition of the court is the subject of general comment, and must certainly cause much uneasy reflection in the minds of those who value the stability and dignity of our judicial institutions.

From every point of view, then, the attempt to revive the income tax by the act of 1895 promises to stand hereafter as a conspicuous example of the danger of playing with edge-tools.

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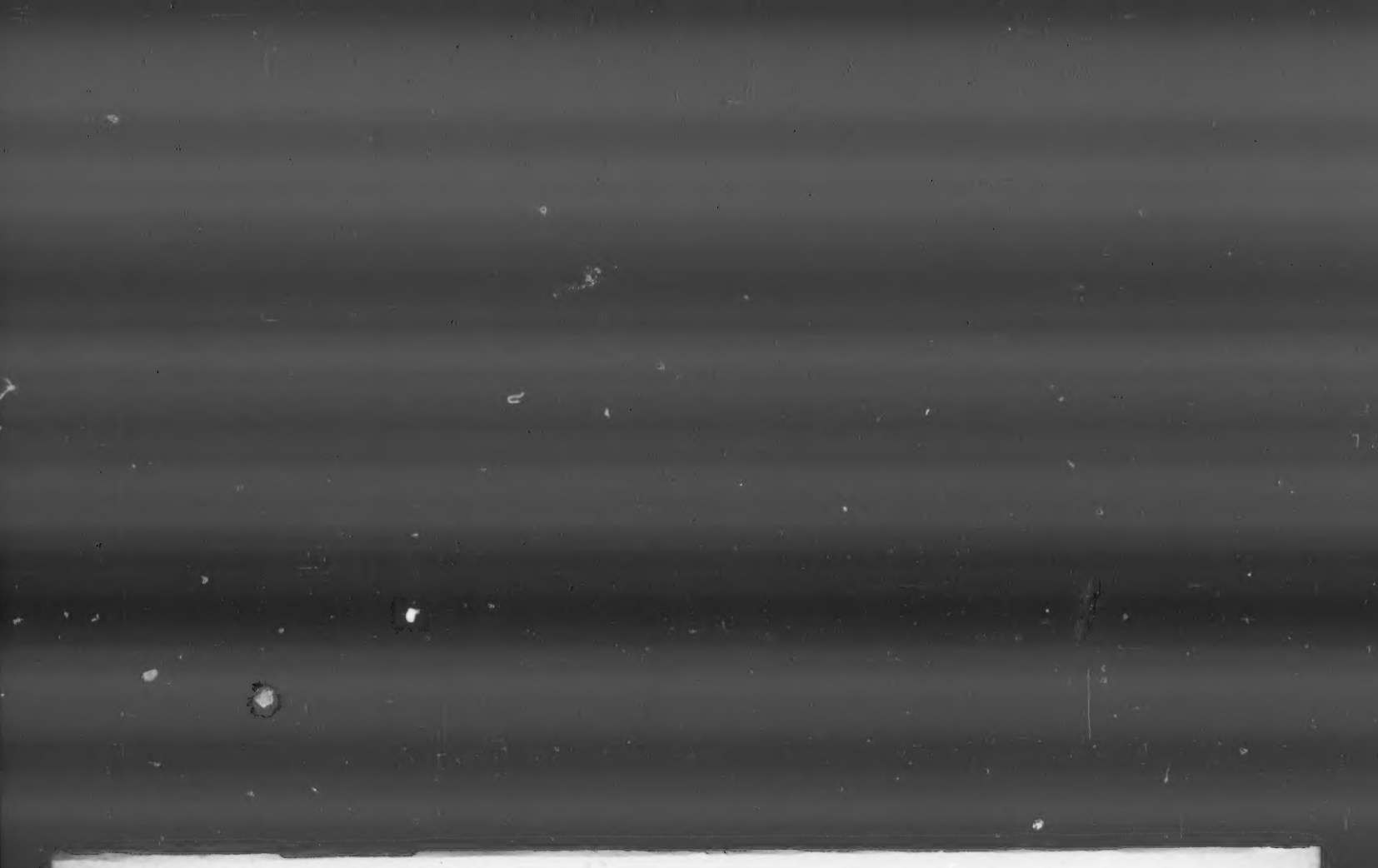
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